Governance of hospitals and accessibility of health care in post-Semashko health care systems

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Except where otherwise indicated in the text,
this thesis represents my own original work.

Przemysław Marcin Sowa

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To my parents

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Dissemination of the research outcomes

The model of governance transition proposed in Chapters 3 and 4 was presented and discussed in academic seminars at the London School of Hygiene and Tropical Medicine on November 22, 2011, and at the ANU Centre for European Studies on December 6, 2012.

The material in Chapter 5 was presented at iHEA 9th World Congress on Health Economics in Sydney, Australia, on July 10, 2013.

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Abstract

This thesis comprises an overview of health care transition in post-communist countries and two original contributions to the subject's literature. The background chapter establishes the meaning of post-communist transformation by presenting key socio-economic changes and characterising health care systems emerging from transition.

The first original study develops, substantiates and statistically applies a model of hospital governance transition. The model goes beyond the traditional public-private delineation and identifies five stages of hospital governance: (1) the integrated Semashko model, (2) decentralised hospital management, (3) devolved hospital ownership, (4) corporatisation, and (5) privatisation of hospitals. Each stage corresponds to a distinct distribution of decision powers, financial risks and residual claims between the sector participants. These characterisations can be seen as efficiency factors associated with decentralisation. Extending on previous studies primarily concerned with financing arrangements, this model constitutes a more complete picture of economic incentives and the managerial capacity in the sector. The econometric analysis of 22 countries over the 22-year period 1989-2010 is based on a random trend model. Notable findings include devolution of ownership leading to increases in acute care lengths of stay, numbers of admissions, and selected measures of mortality attributable to hospital care. Corporatisation of hospitals is found to be associated with increased acute lengths of stay and bed occupancy rates. The findings suggest that decentralisation and autonomisation, as introduced in the region, did not contribute to the intended de-emphasising of inpatient care. Higher utilisation rates coinciding with increased mortality may imply that territorial governments trade-off quality for quantity of care when they are given authority over hospital care provision. Reform design features and resource constraints persistent in the transition systems offer possible explanations of this.

The second study examines health care accessibility in seven countries of Central and Eastern Europe, over the five years 2005-2009, through the lens of individual-level unmet needs for examination or treatment. Investigated are the magnitude and nature of access barriers as well as the structure of inequality. The study design based on logit and multinomial logit models of individual socio-economic characteristics permits the interpretation of findings in absolute and comparative terms and shows the problem dynamics. Health care is most easily accessible in the Czech Republic and Slovakia. Affordability issues and prohibitive waiting times are prevalent in Poland and the Baltic States. Mobility and information represent relatively minor access

barriers. The poorest households, the unemployed, working age cohorts, and women are more exposed than the population at large to problems in accessing health care. Over the analysed period access conditions generally improved. The outcomes show that substantial differences exist between the countries that constitute an arguably homogenous group of post-communist, new EU member states. This suggests there are policy lessons to be learned from peer transition countries. The nature of access barriers is indicative of gaps in coverage and inadequacy of public sector resources relative to need, which call for systemic solutions.

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Abbreviations and acronyms

ALOS	average length of stay (of an inpatient episode)
CEE	Central and Eastern Europe
CEE7	Seven EU member countries of Central and Eastern Europe: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, and Slovakia
CIS	Commonwealth of Independent States
CSO	Community Service Obligation
DRG	diagnosis-related group
EU	European Union
EU-SILC	European Union Statistics on Income and Living Conditions
FD and FD2	first-differencing and double first-differencing; transformation of model data followed by an OLS estimation
FE	fixed effects
FFS	fee-for-service
GP	general practitioner
GDP /p.c.	gross domestic product /per capita
HCS	health care system
HFA-DB	European Health for All Database
HTA	health technology assessment
MOH	Ministry of Health
IHD	ischaemic heart disease
NHS	National Health Service
NPM	New Public Management
OOP	out of pocket
OECD	Organisation for Economic Co-Operation and Development
OLS	ordinary least squares
PPP	purchasing power parity
SDR	standardised death rate
SHI	social health insurance
TEH /p.c.	total expenditure on health /per capita
UK	United Kingdom
US	United States
USSR	Union of Soviet Socialist Republics
VHI	voluntary health insurance
WB /WDI	World Bank /World Development Indicators
WHO	World Health Organisation

Terms and definitions

The purpose of this complementary section is to briefly review the terms most commonly used throughout this thesis, in order to clarify ambiguities and to establish a working terminology for the reader. While for many terms discussed below various definitions can be found in the literature, exploration and reconciliation of those definitions is beyond the scope of the section. Instead, short explanations are provided.

Geographic terms

A variety of labels are used to address the region of interest: former Eastern Bloc, Former Soviet Republics, Europe/Central Asia, Eurasia, Central-Eastern Europe and the Commonwealth of Independent States (CEE/CIS), Europe and CIS, etc. (Shakarishvili & Davey 2005). Recognising the lack of standardised terminology, this study employs the following groups, definitions and acronyms:

Central and Eastern Europe (CEE) comprises (1) Central Europe (i.e. the Visegrad Group): Czech Republic, Hungary, Poland, Slovakia; (2) Eastern Europe (the Baltic States): Estonia, Latvia, Lithuania, and (3) Albania, Bulgaria and Romania. In Chapter 6, the acronym CEE7 refers to the seven countries of the Visegrad Group and the Baltic States.

Figure I: Map of the post-Semashko region

Map generated in Ocean Data View version 4.5.6. Captions added.

The Commonwealth of Independent States (CIS) encompasses countries of (1) Eastern Europe: Belarus, Moldova, Russia, Ukraine, (2) Caucasus: Armenia, Azerbaijan, Georgia, and (3) Central Asia: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan. Admittedly, the definition of the CIS is not accurate in terms of present membership, as Georgia withdrew its membership in 2008, while Ukraine and Turkmenistan are informal (de facto) members. However, the term continues to be used in the literature for the purposes of identification of this subset of Former Soviet Republics.

Throughout the dissertation, the 22 countries comprising the region of interest are together referred to as CEE/CIS, Eastern Europe, the post-communist countries, the post-Semashko countries, the transition countries, or the region.

Post-communist transition

The term "transition" is indicative but not specific. It neither points at a specific transformation nor conveys an economic theory to explain the process. Historically, the term may relate to classical transition of the industrialised economies in the late 19th century, neoclassical transition of post-war democracies, market-oriented reforms in non-Communist countries of Western Europe and South America, as well as Asian post-Communist processes (China, Vietnam) (Papava 2005). Here, "transition" indicates the process of moving from a centrally planned state-owned economy to a market-based, pluralistic economy. The term concerns the evolution of a broad socio-economic environment in the 22 countries of the former Eastern Bloc, starting from the fall of communism in 1989-1993. This evolution includes both various system reforms and exogenous trends. In reference to the health and health care facets of the process, the terms "health transition" and "health care transition" are used, respectively.

Following prominent writers such as Janos Kornai (e.g. Kornai & Eggleston 2001b), the terms "communist" and "socialist" are used interchangeably.

Health care system and its objectives

The Semashko model refers to core mechanisms of the Soviet health care system common for the 22 countries, which include centralisation, integration, state ownership and input-orientated resource allocation. The model is discussed in more detail in Chapter 4.2.

The Ministry of Health is a generic name for any ministry bearing the primary responsibility for the health (care) system. In reality, its competencies have gone under different names in the region, sometimes in combination with those of other ministries (e.g. welfare, social affairs). The Ministry of Health is assumed to be the executive arm of the central government with respect to health care affairs.

A health care system, broadly defined by the World Health Organisation (2000), encompasses all the activities whose primary purpose is to promote, restore or maintain health. Objectives of a high-performing health care system include, according to the Organisation for Economic Co-Operation and Development (2004), high quality care and prevention, accessible health care, responsiveness for patient and consumer satisfaction, acceptable costs, sustainable financing, and economic efficiency.

Performance (of a hospital or health system) relates to the achieved level of explicit or implicit objectives that may include effectiveness, efficiency, equity, responsiveness, quality, affordability, sustainability of financing, cost containment, outputs or outcomes. Efficiency, unless otherwise indicated, concerns economic efficiency that comprises both the productive and allocative aspects.

Hospital care takes the inpatient or outpatient form. The former typically involves a stay of at least 24 hours, although it permits episodes shorter than 24 hours ("one-day hospitalisation") in the case of death or discharge to another health establishment (WHO HFA-DB). Ambulatory care, occurring within a single day, is provided in clinics or hospitals, the latter being outpatient hospital care. The definitions of inpatient and outpatient care may differ to an extent between countries, and consequently there may be minor misalignments in data reported internationally. When the context is unambiguous, the words "unit", "facility" and "establishment" are sometimes used instead of "hospital", for the purpose of providing a linguistic variety in a lengthy manuscript dealing predominantly with hospitals. The terms "doctor" and "physician" are used as synonyms. "Provider" implies a medical professional or an organisation providing health services. In a broad sense, in decentralised systems, territorial health authorities and sub-national governments are providers of health care, in so far as they can decide about networks, capacities and processes of the hospitals they own or supervise.

Social health insurance is a mandatory, usually payroll-based, system of contributions for health care financing that also serves the goals of risk and income solidarity. "Voluntary health insurance" refers to non-statutory, prepaid financing schemes an individual may choose to join in order to protect against out-of-pocket expenses.

With respect to provider payments, budget-based financing indicates a set pool of funds periodically allocated to a provider, often according to an adjusted previous year's budget and following a line-itemisation. Fee-for-service refers to a situation where the provider is paid a contracted fee for every defined unit of service it supplies to the patient. The "unit" is broadly understood and may take various forms, e.g. a concrete medical procedure (test, examination, surgery), or a day of hospitalisation. The units of service are typically unbundled and unrelated to the patient condition, although specific implementations vary considerably between systems. The payment mechanism can be used to reimburse individual physicians as well as provider

organisations (e.g. a hospital) contracted with a third-party payer. Patient-based (or case-mix) payments are primarily based on patient characteristics, such as diagnosis and age, but in principle independent from the actual medical procedures provided to the patient. Diagnosis related groups (DRGs) are the most common category of patient-based payments.

Corruption, in health care or otherwise, usually involves the use of public office for private gain however the mechanisms, stakeholders, objectives and legal classifications of corruption vary considerably. One of its common forms is making informal (envelope, under-the-table) payments by patients to doctors who are in position to ration medical care within the public system. Such payments are aimed at securing higher quality of care, shorter waiting time, or other benefits, and often put other patients in a relative disadvantage.

Other generic terms follow the World Health Organisation definitions (Roberts 1998).

Decentralisation and other institutional change

Decentralisation is a "downward" or "outward" transfer of authority, power and responsibility. Decentralisation modes include delegation (a transfer within an organisation), de-concentration (between administrative levels), devolution (between political levels) and privatisation (from public to private ownership) (Bankauskaite & Saltman 2007).

Governance is the institutional environment that defines the structure and appointment of managing bodies, the scope of their autonomy, decision rights and responsibilities, as well as mechanisms of accountability and principal stakeholders.

The terms "institution" and "institutional" are understood in the broad sense of humanly devised formal and informal constraints that structure political, economic and social interaction (North 1991). Following this definition is a distinction between institutions and organisations.

Autonomisation is a process of empowering political and organisational governing bodies by increasing the scope for their decision-making.

A corporation is an organisation that operates under the private sector law and is subject to the rules of corporate governance, reporting, etc., of its respective commercial sector. This is in contrast to public company status that grants a separate set of rules and often privileges such as subsidies. Both private and public bodies may be the sole or majority owners of corporations. Corporation, commercial (trade) law company and joint-stock company are used interchangeably in the literature and thus considered synonyms. Corporatisation is a process of transforming public organisations into corporations.

The terms "non-profit" and "not-for-profit" are used alternately in reference to organisations that retain their surplus revenues for statutory use rather than distributing them as profits or dividends.

The discussion at times abstracts from a regional (regions) or local (district or municipality) division, instead referring to sub-national (or territorial) governments. The levels of government are assumed to correspond to catchment areas of hospitals under their management.

PART I:
INTRODUCTION AND BACKGROUND

Chapter 1:
Introduction

1.1. The theme

The theme of this dissertation was inspired by the book by János Kornai and Karen Eggleston "Welfare, choice and solidarity in transition. Reforming the health sector in Eastern Europe". Published in 2001 (Kornai & Eggleston 2001b), the book analysed points of departure and offered reform guidelines for post-communist health care systems (HCSs). This involved both general principles of reform, such as ethical postulates and fundamental coordination mechanisms, and specific recommendations for financing, delivery and regulation. From the exposure to their book came a realisation of the monumental change that has been taking place in Eastern Europe. Leaving behind the communist model of health care necessitated setting new grounds regarding the competing principles of individual sovereignty and solidarity; it also required unprecedented rules for the co-existence of the public and private sectors. Put into practice, shedding burdens of the past has been an experience full of hardship.

The process has had implications of a great magnitude. Its materiality is perhaps best illustrated by basic demographic and economic parameters shown in Table 1.1: the region's population in 2009-10 was 382m (down from 387m in 1989-90). The gross domestic product per capita in terms of purchasing power amounted 11,708 (9,504 in 1989-90) dollars, corresponding to the total GDP of 4,477bn (3,679bn) dollars. Per capita expenditures on health almost doubled to reach 709 dollars, and in the aggregate terms accounted for 271bn dollars. The public share of health expenditures was 65 (previously 71.5) per cent, and life expectancy at birth 71.1 (70.2) years. Relative to the European Union (EU), in 2009-10, the post-Semashko region amounted 77 per cent of the population size, 37 per cent of per capita and 29 per cent of total purchasing power GDP, 22 per cent of per capita and 17 per cent of total expenditures on health, 86 per cent of the public share of total health expenditures, and 89 per cent of life expectancy at birth. The comparative figures illustrate the size of the region and the largeness of social and

Table 1.1: The post-Semashko region, selected characteristics

Armenia	3.34	3.09	2,938	4,901	123	216	39.8	40.6	72.3	73.9
Azerbaijan	7.16	9.05	4,754	8,913	203	524	61.2	20.3	70.8	73.8[2]
Belarus	10.19	9.49	6,434	12,494	205	700	68.7	77.7	71.8	70.6
Bulgaria	8.72	7.53	7,529	11,490	404	789	81.4	54.5	71.5	73.8
Czech Republic	10.33	10.52	16,367	22,575	972	1,778	84.9	83.7	71.8	77.5
Estonia	1.57	1.34	10,146	16,561	367	999	53.0	78.7	70.6	75.3
Georgia	4.80	4.45	6,138	4,552	273	461	62.5	23.6	72.2	73.8
Hungary	10.37	10.00	13,120	16,958	781	1,242	84.4	69.4	69.7	74.5
Kazakhstan	16.35	16.32	7,089	10,916	315	468	62.3	59.4	68.8	68.7
Kyrgyzstan	4.39	5.45	2,524	2,008	125	124	66.7	56.2	68.5	68.8
Latvia	2.66	2.24	10,109	12,948	391	866	56.1	61.1	70.5	73.3
Lithuania	3.70	3.29	12,500	15,534	447	1,094	72.0	73.5	71.8	73.2
Moldova	3.70	3.56	4,583	2,790	179	326	74.4	45.8	69.1	69.4
Poland	38.11	38.18	8,182	17,352	415	1,295	80.3	72.6	71.1	75.9
Romania	23.20	21.44	7,853	10,921	304	609	61.4	78.1	69.6	73.6
Russian Federation	148.29	141.75	12,626	14,183	381	720	66.8	62.1	69.7	68.8
Slovakia	5.30	5.43	12,693	20,164	754	1,772	84.9	65.9	71.2	75.4
Tajikistan	5.30	6.88	2,961	1,940	177	116	72.6	26.7	69.5	73.7[3]
Turkmenistan	3.67	5.04	3,749	7,422	187	185	66.4	59.4	65.2	66.1[4]
Ukraine	51.89	45.87	8,063	6,029	266	466	69.7	56.6	71.0	69.7
Uzbekistan	20.51	28.23	2,002	2,786	118	162	72.1	47.5	69.3	70.5[3]
CEE/CIS	387.05	382.37	9,504	11,708	357	709	71.5	65.0	70.2	71.1
EU		498.19		31,257		3,152		75.2		79.8

[1] 2004, [2] 2007, [3] 2005, [4] 1998

CEE/CIS totals calculated as population-weighted averages of the individual country values, with the exception of population total, which is a simple sum, and the public share of TEH, which is weighted by TEH. EU values (2009) were taken from the WHO HFA-DB.

Source: World Bank, World Development Indicators, 2012.

economic implications that health sector transition has had in Eastern Europe. The sheer scale of the affected population justifies the urgency of problems discussed in this and other studies of post-Semashko HCSs. In addition, comparing the post-communist countries against the EU reveals some of the region's fundamental economic problems, most notably the scarcity of capital and low levels of labour productivity.

The problems addressed by this dissertation are also motivated by the relative scarcity of research activity and evidence in the post-communist countries. This shortcoming is contrasting with the need for reliable information to guide numerous fundamental health care reforms: mistakes made at initial stages of any project are often costly and irreversible at later stages. Inadequate research efforts have stemmed from various reasons, including historical under-reliance on evidence, underdeveloped information systems and reporting standards, as well as the lack of transparency and stability of processes. Importantly for economists, markets remain secondary in Eastern European health care, whereas the prominence of the state continues. Some of these problems echo throughout the following chapters.

Kutzin el al. (2010b) argue that "the label 'transitional' is no longer helpful in understanding the [CEE/CIS] countries". Their implication of Eastern European health transition being a closed chapter coincides with post-communist countries such as the Czech Republic, Estonia, Hungary and Poland progressing from the World Bank's (WB) upper middle to high income classification. While the systems emerging from transition continue to struggle with unresolved problems, new pressures are quickly approaching: resurging infectious pathogens, diseases of civilisation, population ageing and fiscal pressures vis-à-vis health cost inflation. The mix of old and new challenges calls for a thoughtful consideration of resources, processes and priorities.

For a number of reasons, economically evaluating health care reforms of post-communist countries is a formidable task. The Fall of Communism was a turning point in the history of the affected countries, breaking the historical continuum and creating conditions for liberalisation and fast development. Within a few years of the transition the societies embraced such concepts as entrepreneurship, consumerism, and individualism, which were non-existent or suppressed under the previous regime. Markets for goods and services appeared; the ideas of needs and wants were redefined. Looking at this turbulent and rapidly evolving institutional environment it is difficult to link causes and effects. This is particularly true for in health care systems, given their weight in the economy and the complex nature. A number of features of this complexity are discussed in the seminal paper by Arrow (1963): irregularity and unpredictability of demand, the sensitive nature of the patient-physician relationship, product uncertainty, special supply conditions, problems in pricing, and limitations of insurance. A contemporary view of characteristics distinguishing the economic nature of health care is encapsulated by Folland et al. (2012) who highlight (a) presence and extent of uncertainty, (b) prominence of insurance, (c)

problems of information, (d) large role of non-profit firms, (e) restrictions on competition, (f) role of equity and need, (g) government subsidies and public provision. The above list is indicative of a difficulty in applying neoclassical economics as a tool for understanding health care systems at large. The difficulties are amplified in the setting of post-communist transition, where markets remain an allocation mechanism secondary to the bureaucratic coordination of the dominant public sector. Here, the market failures of externalities, public goods, abuse of market power, information asymmetry and uncertainty are compounded by government failures: self-interest, policy myopia, regulatory capture, disincentive effects, and so forth.

Despite the heralded end of transition, many of its mechanisms are still insufficiently described or understood. Among the most prolific topics in the literature of Eastern European health policy are the financing model for raising revenue and allocation through provider payments, privatisation of primary and outpatient care, and selected areas of public health. The selection of research questions for this dissertation is intended to provide a complementary view.

1.2. Research questions

In the broad terms, this present dissertation aims to enhance our understanding of the post-communist countries' problem in the organisation of health care and to generate recommendations rooted in both theory and evidence. More specifically, there are two problem areas that the manuscript addresses. The first one, which concerns autonomy, ownership and legal forms of hospitals, aims at explaining the "hospital governance" dimension of HCS transition, and indicating desired directions and extents of the hospitals sector transformation. The second sheds light on accessibility of health care by providing new evidence on unmet medical needs from seven post-Semashko countries of Central and Eastern Europe (CEE7). This study links to the theme of the thesis by the observation that considerable variation in health care accessibility exists despite the fact that the seven HCSs originated from the nearly homogenous Semashko system. The existing variation in performance can be linked to reform choices made throughout transition, thus indicating the most successful reform trajectories.

Consequently, research questions for Part II of the thesis are the following: (1) Does the region-wide transformation of the hospital sector form a pattern? (2) Can elements of this pattern be argued to have distinct economic characteristics? (3) What are expected impacts of the hypothesised transformation phases on hospital sector performance?

Part III, on the other hand, is an attempt to establish whether (1) there are systematic differences in unmet medical needs between seven post-Semashko health care systems, (2) the identified differences can inform us about HCS performance in terms of medical care accessibility, and (3) the accessibility outcome can be linked to HCS design choices made during transition.

1.3. Original contribution

The research questions also highlight the areas where this dissertation provides original contributions. Part II recognises the centrality of governance arrangements from the standpoint of economic incentives. It is the first attempt to identify region-wide patterns in the changing hospital sector, inclusive of a discussion of their economic significance and a statistical verification of implications for performance. Considering the fact that the broader economic literature of hospital governance has mainly focused on industrialised countries, this study extends the scope of discussion onto a considerable number of new countries and offers new evidence coming from health care systems of a unique background.

The innovativeness of Part III relates both to it generating new evidence and in contextualising this evidence for the discussion of peer performance. While studies have previously relied on the dataset of European Union Statistics on Income and Living Conditions (EU-SILC), this present thesis uses the data in a more meaningful way: to produce longitudinally and cross-sectionally comparable evidence that sheds light on both absolute and relative performance of HCSs that have evolved from the same root of communist medicine. The new evidence on unmet medical needs stands on its own merits by informing health care policy about accessibility of health care. However, the particular comparative context enables additional interpretations in terms of benchmarking performance of post-Semashko systems, thus indicating the successfulness of individual country transition paths. Lastly, the contribution of the study extends to the presentation of results from multiple statistical models in original, legible layouts.

1.4. Policy relevance

There are many points of tangency between the analyses and findings of this dissertation and health care policy. Part II addresses numerous issues persistent in the hospital sector. It suggests that those issues cannot be resolved by using more sophisticated payment mechanisms only. Chapter 4 reviews intricacies of the incentive environment and makes suggestions with regards to aligning external and internal incentives. Many interdependencies and possible synergies have been overlooked in the process of transition, which perpetuated old deficiencies. Given the materiality of hospitals in general, and their special position in the Semashko and post-Semashko HCSs, an improved understanding of the hospital evolution may facilitate the reform process of the less advanced countries and help identify problem areas in the systems at the forefront of transition. With respect to this, Part II offers a conceptual model of transition that goes beyond the public and private delineation, theoretically and empirically explores implications of various stages of hospital transformation, suggests desired ownership forms and governance arrangements, and summarises mistakes made in transition.

Part III maintains the perspective of parallel post-Semashko health care systems, however, addresses a different problem with a narrowed-down scope both in terms of the number of countries and the length of the time dimension. As mentioned previously, the policy relevance of this is two-fold. Firstly, in each of the analysed countries, evidence of unmet medical needs will help policy-makers target vulnerable groups and ensure higher equity of health care access and utilisation. Secondly, the comparative structure of the study reveals differences in performance that are likely emerge from varying systemic capacities of financing, provision and regulation of health care, including the governance arrangements presented in Part II. This may suggest models of health care that are more successful than others. Such comparative evidence may be particularly useful in combating prejudices entrenched in post-communist systems, such as those regarding competition, decentralisation and financial discipline.

1.5. Choice of countries

The selection of countries for Part II is based on the operation of the Semashko model prior to 1989. In contrast to some other studies of post-communist countries, this criterion excludes a number of countries, most notably of Southern Europe. This is because the countries of former the Socialist Federal Republic of Yugoslavia emerged from Communism with highly decentralised health care involving social health insurance and provision organised by "self-managed communities of interest" (Cain et al. 2002). The fundamental disparity between the centralised Semashko and decentralised Yugoslavian model would prove problematic in characterising transition trajectories. Instead, assuming the latter group out allows exclusively focusing on the inheritance and features of the centralised and integrated model of health care. After the Fall of Communism, the 22 selected countries took health reform approaches that varied in comprehensiveness, vision and pace, resulting in diverse transition paths. Thus, conceptually, this dissertation is based on the idea of a natural experiment that occurred within the former Eastern bloc and originated from a common entry point. The adequacy of this interpretation is examined in Chapter 2. Countries in scope for the study in Part III are a subset of the above, with the subset composition determined by the availability of data in the EU-SILC.

1.6. Structure of the dissertation

The dissertation is organised in Parts and Chapters. Part I comprises this current introduction as well as an explorative study of post-communist transition. The aims of the background study in Chapter 2 are to (1) indicate broad social and economic aspects of the transformation most relevant for the health care sector, (2) outline the nature and challenges of health care systems in transition, (3) show main directions of research in the field and assess the completeness of literature, (4) justify and contextualise the remaining chapters by showing their contents vis-à-vis identified gaps in the literature.

Chapter 2 recognises that the period of transition has been a time of great socio-demographic and economic change for the former Soviet bloc societies, and has not been without consequence for the health systems. A few aspects are highlighted: the institutional environment fundamental for any form of economic activity, macroeconomic growth and downturns that underlie available HCS resources, as well as social and demographic trends that determine health needs, production, and outcomes, e.g. economic inequalities, population ageing, education, and burden of disease. Secondly, the dissertation necessitates an overview of basic common and distinguishing characteristics of the 22 countries it is concerning. By identifying idiosyncrasies present in the region, the background enables an identification of relevant peer groups, a contextualisation of discussion and an assessment of reforms relative to challenges, capacities and available resources. Thirdly, the chapter summarises developments in HCS reflected in the literature of the subject. This includes key elements defining health systems (mechanisms for revenue collection and allocation, new prerogatives for the public and private sectors), the consistency and quality aspects of reform, as well as deficiencies and challenges to be faced by any reform. Finally, the chapter sets the stage for the study in Part II by discussing problems specific for the hospital sector.

Part II presents an original study of transforming hospital sector governance in post-Semashko countries. The study corresponds with a growing number of publications on the subject of hospital governance, and counterpoises the literature predominantly focused on industrialised countries of the EU, the United States (US) and Australia (cf. Smith et al. 2012). The choice of the subject is based on the observation that this is a relatively unexplored, if not neglected, topic in comparative studies of health care in CEE/CIS. A literature overview in Chapter 2 will show that the aspects of revenue collection, pooling, purchasing, basic basket definition as well as privatisation of primary and ambulatory care have so far been most extensively analysed. Meanwhile, consequences of the shifting powers from the central government toward territorial governments and increasingly autonomous hospitals have received less attention. Part II will argue that this re-balancing of responsibilities has been a key component of the post-Semashko transition.

Part II of the dissertation consists of three chapters: narrative and explorative (Chapter 3), theoretical (Chapter 4), and econometric (Chapter 5). Chapter 3 summarises the individual experience of each country, which it generalises to a model of hospital governance transition. Recognising this process leads to proposing an extended typology of post-communist HCSs that improves our understanding of transition compared to classifications based solely on the financing arrangement. Moreover, reviewing hospital governance in 22 countries offers a good opportunity to reflect on good practices and common mistakes made in this region-wide process. Chapter 4 discusses economic implications of the process in question. It starts off by outlining mechanisms for resource allocation in the communist system and the meaning of its

departure. It then refers to the arguments of decentralisation, corporatisation, and economic models of hospital behaviour in order to indicate overall expected impacts of changing governance on hospital operation. Chapter 5 econometrically verifies the theoretical predictions of Chapter 4 in the context of the processes mapped in Chapter 3. The statistical analysis uses the random trend model (Wooldridge 2002) in a panel data setting (22 countries over the period 1989-2010) to estimate the impacts of the governance settings represented with dummy reform variables, while controlling for economic incentives of provider payments and other parameters of the hospital sector. Hospital performance is represented with 48 measures of resources, utilisation, and mortality (i.e. 48 models are independently estimated). Other than sections on methods, data and results, the chapter thoroughly tests the robustness of outcomes by exploring alternative specifications.

Part III contains a study of health care accessibility in Eastern Europe through the lens of individual-level unmet needs for examination or treatment. Investigated are the magnitude and nature of access barriers as well as the structure of inequality in seven countries over the period 2005-2009. This chapter links to the theme of the dissertation by focusing on a peer sub-group of post-Semashko health systems, as per discussion in Chapter 2.3. It also sheds light on the varying levels of health care accessibility and equity, which may be affected, among other things, by higher standards of accounting and governance imposed on the provider organisations, an aspect of transition discussed in detail in Chapters 3 and 4. Given similar background and a shared history institutional development, the identified differences may be attributable to strategic choices in reforming those systems.

The dissertation closes with a chapter that summarises key findings and binds them together in conclusions and recommendations.

Chapter 2:

Selected socio-economic aspects of post-communist health care transition

2.1. The starting point

The characteristic that binds together the 22 countries in scope for this dissertation is that prior to 1989 they operated the Semashko health care model. The model was named after Nikolai Aleksandrovich Semashko, a USSR public health leader and the 1918-1930 Health Commissar, who supervised the health sector organisation after the Bolshevik Revolution in 1917 when medical services became nationalised in the anti-market and anti-profit Marxist movement (Ebeling 2008). The Semashko system spanned over the USSR as well as its satellite countries and provided a Soviet alternative to the Bismarck model of social insurance and the Beveridge model of the welfare state.

This health sector was consistent with the rules that founded the Soviet economy at large. The State assumed full ownership of capital as a factor of production. The system was funded by the state with resources collected at local, regional and federal levels; pooling took place in the central budget allocated between ministries. There was no distinction between financing and provision. Input-oriented resource allocation was based on historical continuation. Inputs' sizes were considered indicators of prestige in the non-financial economy, and the inputs obsession made it practically impossible to disinvest. The lack of downsizing was also a result of the philosophy of extensive, rather than intensive, economics. The assumption that bigger was better was reflected in central plans that orchestrated the operation of the economy. Allocation was rigid in the sense it did not allow transferring of resources between line-item budget categories.

The State also exercised top-down control through a hierarchical structure headed by the Ministry of Health (MOH). All executive decisions were made by the MOH officials. Hospital directors were nominated and played a passive role of administrators rather than managers.

They were left no discretion in the scope of provided services, modes of provision, facility organisation or expansion. Purchasing of medicaments and equipment was carried out at the central level. The sector decision-making was highly political and personal influence was an important factor in achieving any goal. Obtaining extra resources was primarily a matter of personal influence and only to a minor extent subject to efficiency or equity considerations.

Ministries other than the MOH, such as defence, education, transport and infrastructure, and internal affairs, operated independent systems for their elites and employees. In the USSR, 15 republics were in charge of their health care systems, however, they operated under close control of the central department in Moscow. This led to the paradox of a centralised and hierarchical yet territorially and departmentally fragmented system (Davis 2010).

In line with communist thought primarily concerned with heavy industry and working class welfare, the health sector was considered a non-productive sector and health care professionals were treated as a non-priority group. Primary care was provided by paediatricians, gynaecologists and generalists of low pay, status and qualification (Grielen et al. 2000). The priority given to the health sector at large was reflected in salaries: despite the highest levels of education attainment, medical workers were paid below the national average salary, in particular, below the epitomised industrial workers' salary. Moreover, the job often involved allocation to remote or countryside areas, putting additional burden on the health labour force. Gender inequalities existed as a majority of the medical staff was female.

While resting on the same broad premises of state ownership, equity and free care, the communist health system evolved following the 20th century advancements in medicine and public health. Epidemiology, hygiene and sanitation, breakthrough medical discoveries such as the invention of penicillin and the rise of modern clinical medicine were among the factors that affected system organisation and pushed it towards an increasing reliance on hospital care. The health system also followed the broader political developments. Kornai (1988) illustrates how personal freedoms expanded in Hungary between the early 1950s and mid-1980s. The freedoms encompass professional choices (education, first job, change of job, working hours, overseas employment) and consumer choices (food, other consumer goods, housing, transport, medical services, child care, recreation and travel). Historically distinct is the hard Stalinist period, after which some thawing took place in the 1970s and 80s, resulting in the late 1960s revolutions in Hungary and the early 1980s Solidarity movement in Poland. These social changes had implications for how tightly the HCS were controlled by the political apparatus, particularly in the satellite countries.

Despite being justified as people-orientated, the communist system suffered from serious equity issues. Admittedly, the first-contact medicine and hospital care were accessible geographically and available free of charge. In reality, the availability of health care facilities, accessibility of

care and its quality was highly dependent on system tiers, ranging from good in the elitist, to medium in cities and poor in rural areas. Shortages in medical supplies forced substitution with inferior quality and promoted those well-connected and wealthy who were able to pay off in cash, in kind or by exchanging favours. The creation of informal networks was inherent to the communist system, which supported and necessitated these arrangements to exercise control and allocation (Paldam & Svendsen 2000). The political elite enjoyed a different exclusive tier of health care altogether. Moreover, in the face of officials' arbitrariness, personal influence led to promotion of politicians' home regions and cities, which perpetuated inequalities. Overall equality and security was low, and resulting health protection only basic.

Milton Friedman (1996), in his comment on Health Maintenance Organisations, drew a parallel to socialist health care as a warning against depersonalisation of medicine. Said depersonalisation occurs when the patient does not value "free" care and, in facing zero price, disregards the cost of provision. The physician, on the other hand, is concerned with performance indicators, sees the patient as a "subject" and perceives him or herself primarily accountable to the employer. HMOs, Friedman argued, similarly to the socialist medicine deprive the individual of choice and dignity. Moreover, both systems introduce incentives that break the traditional relationship of trust and responsibility.

In the environment where the State monopolised the provision of nigh all goods and services, responsiveness to citizens' needs was minimal and whimsical. The patient had no choice of provider and no venue for appeal against decisions or for complaints about poor quality of care (Kornai & Eggleston 2001a). Clerks enjoyed the position of power and clients were considered "petitioners" with no voice to challenge the public behemoth. Anecdotal evidence tells indifference and unfriendliness were means for extracting informal fees by staff whose attention could be bought. Malpractice litigations were either non-existent or ineffective, as quality issues and disciplinary problems had the status of internal issues. Moreover, personal influence often protected doctors from facing any responsibility for medical errors. The doctors' untouchability granted by the self-defensive physicians' lobby persists to this day. In 1998 Poland, sentences were passed in 1.4 per cent of malpractice complaints (Sandauer 1999).

A distinguishing feature of the Semashko model was the emphasis it placed on hospital care. This came at the expense of marginalised primary care and neglected lifestyle issues of alcoholism, inadequate diets and working conditions, all of which meant forgoing highly cost-effective preventive measures and adversely affected health outcomes. This became apparent in the comparative perspective: the Eastern Bloc lagged behind when western health systems benefited their populations with life expectancy increases in the latter half of the 20th century. Andreev et al. (2003) show that avoidable mortality rates in Russia and the Baltic States in the 1960s were on a par with the United Kingdom (UK). However, towards the end of the century

the communist countries failed to match the British system in eliminating avoidable deaths. This straggle was particularly pronounced in the USSR and then Russia. In consequence of avoidable mortality and other reasons, between 1965 and 1999, the life expectancy gap between Russia and the UK grew from 3.6 to 15.1 years for males and 1.6 to 7.4 for females. In Czechoslovakia and Hungary in the 1980s, avoidable mortality increased and then reduced slowly, compared to considerable monotonic decreases in six western countries (Bojan et al. 1991). This divergence illustrated the problems of economic efficiency and the incapacity to innovate. In particular, the Eastern Bloc failed to keep up with the West when new pharmaceuticals and surgical procedures were being widely introduced in the early 1970s (McKee 2005). However, Ensor (1993) argues that only a portion of the increases in life expectancy and mortality gaps between communist and Western countries were amenable to HCS inefficiencies. Environmental and lifestyle factors were substantially more material, which nonetheless revealed the inability of the health system to respond to those problems.

The Semashko system proved effective in the post-war decades when modern health systems were being built. Expanding health system capacity through physician training and investments in basic physical infrastructure resulted in unprecedented levels of accessibility, most notably of inpatient care, although the quantity of care was prioritised over its quality. At those early stages the input drive provided an opportunity for increasing the densities of facility networks and the number of doctors per unit of population. This translated into the availability of hospital beds and equitable access to specialised care for entire populations, if with preferred treatment of industry workers and state employees. Public health and the emphasis on epidemiology was another achievement of the evidence-based communist medicine (Borowitz & Atun 2006). Extensive vaccination programmes covered nearly 100% of children (WHO HFA-DB). This statistic was the ultimate propaganda material, and an alleged proof of the Soviet system superiority over capitalism. These developments were paralleled by provision of clean water, improvements in sanitation, hygiene, nutrition, education, control of infectious, occupational and environment-related diseases. Altogether, these factors led to declines in child and maternal mortality rates as well as standardised death rates (SDRs) in various disease categories, ergo large improvements in health status across the population until the early 1960s (Borowitz & Atun 2006). The increasing life expectancy was a result of the system's orientation towards containing communicable diseases, such as malaria, yaws, leprosy and tuberculosis, which posed the major health challenge over a couple of decades after World War II.

It was only after the epidemiological shift to non-communicable diseases when the system showed its limitations: a lack of flexibility, the negligence of primary care, the lack of health promotion as a part of public health strategy, and the failure to control and counteract risk factors such as high consumption of dietary fat as well as drinking and smoking habits. These deficiencies resulted in a great burden of self-induced cardiovascular, stroke and cancer diseases

and disallowed further mortality decreases that unfolded in Western Europe. Nonetheless, the Semashko system maintained its hallmark features: universal entitlement, a high level of protection against health-related financial risks, and emphasis on equality and solidarity if at the expense of efficiency (Shakarishvili & Davey 2005). Expectations thereof persist in the transition societies.

To some extent, the Soviet model resembled some European systems. In particular, it shared features of the National Health Service model in being a unified national system for service delivery, publicly owned and administrated, and funded through general taxation, albeit with lower levels of aggregate health spending. In 1991, the USSR health care expenditures amounted to less than 4% of its GDP, compared to 6% in the UK, which also represented the lowest level among the OECD countries. This reflected the perception of the health sector as a non-productive area of the economy (Borowitz & Atun 2006). After the initial period of relative success, the system started to stagnate and collapse under the weight of the self-imposed development philosophy, input orientation and the grandiosity of the Communist planning. Growing hospital networks greatly contributed with their high upkeep, mediocre quality and a lack of flexibility in targeting the changing nature of health needs. Adaptation to the changing needs related to lifestyles and civilisation was beyond its reach, due to the inherent lack of flexibility. The system design inevitably promoted and rewarded corruptive behaviours, which lead to the growth of an unofficial circulation of goods and services. The informal allocation became a material part of the communist economy.

Rowland and Telyukov (1991) summarise the problems that post-Soviet health care systems faced on the brink of transition. They report four groups of problems, relevant to all communist countries, but considerably more severe in the Soviet Republics than in Central and Eastern Europe. Firstly, there are environmental factors, most notably high prevalence of smoking, poor dietary and lifestyle practices, meagre living conditions and hazardous labour conditions. Secondly, health system factors include dramatic shortages in basic inputs for health care production, including facilities, equipment, medical supplies and wages. Rowland and Telyukov illustrate these conditions with the fact that in rural areas of Soviet Republics, 27 per cent of hospitals had no sewage system and 17 per cent had no running water. The third problem concerns an intentional overreliance on hospitals, intensified by the lack of consideration for primary health in polyclinics and ambulatory care centres. The region had the highest numbers of hospitals and hospital beds per unit of population in the world, the longest lengths of stay, and vast numbers of highly specialised medical professionals trained to staff those facilities. Fourthly, the authors indicate the low priority given to the health sector at large, which materialises in low levels of funding expressed as a share of GNP; this is coupled with the rigidity of planning, a lack of efficiency incentives, low morale of health workers, and an utter lack of confidence in the system by all its stakeholders.

At the dusk of communism virtually all CEE/CIS countries operated this classical Semashko system. Minor design variations that took place before 1989 (discussed in Chapter 2.3) did not affect its principal mechanisms. The system became the region's inheritance and the burden carried over into the period of transition. In some progressive countries of CEE, health care organisation has been largely redefined with the aim of neutralising deficiencies of both excess and shortage. However, the more intangible aspects of the communist system such as attitudes and corruption left an enduring burden across the region, and hampered the reform process.

2.2. An institutional transmutation

2.2.1. From central planning to market allocation

Countries of Central and Eastern Europe have recently seen a dramatic change in how their economies operate and perform. In just over twenty years they transitioned from central and planned into market-based, open economies, marking their presence in the global economy. The challenges of transition from centrally planned to free market economy were unprecedented. In case of most countries this transformation entailed a marked convergence to Western socio-economic systems. Kornai (2006) enumerates its six most important characteristics: (1) a shift to the capitalist economic system and (2) democracy; (3) completeness, in encompassing the economy, the political sphere, ideology, legal systems and the society; (4) non-violence and (5) and peacefulness in starting off and spreading out without a military conflict; (6) progressing at a remarkable pace over 10-15 years.

Deep structural changes and marketisation were high on the CEE/CIS reform agenda. This was a result of bottom-up freedom aspirations of the populations but also a strategy advocated by the World Bank and other advisory organisations. Recipes for creating the free market economy relied on the ingredients of stabilisation, liberalisation and deregulation, a rapid shift from shortage to surplus economy, privatisation and structural ownership changes, as well as integration with Western Europe (Lipton et al. 1990). Some outcomes of these experimental reforms were increased income inequalities, an early recession and a fall in economic outputs ranging from 15 per cent in Central, Eastern and Southern Europe to 40 per cent in CIS, accompanied by an accelerated economic growth in most countries (World Bank 2002). The initial recession was primarily caused by (a) a rapid shift from a sellers' market to a buyers' market, (b) the transformation of the real structure of the economy, (c) disruptions in coordination, (d) financial discipline and enforcement of efficiency, and (e) the backwardness of the financial sector (Kornai 1994).

A retrospective account reveals a number of approaches rather than a unifying theory of post-socialist transition. Papava (2005) argues that the term does not imply any specific concepts, approaches or definitions. Instead, it is a broad term that is used in reference to a number of

cases and lines of thought that apply to political, social and economic contexts. Key political choices concerned gradual change or "shock therapy", a process of approaching to a market economy or a search for the "third way" or "market socialism", organic private sector growth or "accelerated privatisation", as well as a redefinition of state ownership and public choice (decentralisation, New Political Economy). Furthermore, the emerging private sector was far from homogeneous (Winiecki 2000). Substantial differences existed between the privatised enterprises formerly operated by the state and the generic private entrepreneurship that was further diversified by firm sizes and industries. Kornai (2000b) emphasised that the private sector could only achieve its full capacity through organic development. Former State companies, privatised or corporatised, would often carry old system's fallacies of the monopolistic power, obsolete technologies, oversized staff, bureaucratic practices and deep-rooted inefficiencies.

The transition paths have differed between the countries over the 20 years since the fall of Communism. Some have remained largely unreformed (e.g. Belarus), whereas some others made great development steps. For example, in 2006, the Czech Republic and Estonia met the World Bank's definitions of high income countries, and were later joined by Hungary, Poland and Slovakia (World Bank 2013). These countries have also become the European Union members, which marked their comprehensive institutional transformation. The World Bank (2002) highlights structural changes of the first ten years of transition, by the same token identifying the factors that contributed to differences in performance between post-communist economies. Among these factors are: imposing market discipline and hard budget constraints upon inherited state enterprises and encouraging the growth of new enterprises independent from the state; introducing measures against corruption, theft and asset-stripping; managing the burdens of protectionism, special privileges, industry cross-subsidies and inefficiencies; strengthening the financial systems; privatisation, restructuring and promoting market entry; rapid growth of small enterprises; managing the tax burden; building a market-friendly institutional and policy framework; de-politicising enterprises; de-monopolisation; investor and private-property protection; rule of law and legal certainty; flexibility of labour markets; fiscal discipline and sustainability; and reforming the oversized welfare sector. Kornai (2000b) observed that a shift from socialist to capitalist economy yields the best results when the change is gradual and organic. Impelling a high pace of transformation led to inferior reform quality, stability and sustainability, factors that are decisive for macroeconomic success in the medium and long term. Experimentations with hybrid social markets and continued public ownership were also found to be predictors of economic underperformance.

Moreover, the "negative social capital" had adverse implications for the pace of transformation. The strength of informal networks broke general trust and destroyed social capital, a problem that became visible after the move to a market system that rewarded cooperation. Paldam and

Svendsen (2000) operationalised the idea of social capital and measured its abundance, establishing a correlation between replenishing the pool of social capital and fostering social and economic growth. The low levels of the public good "trust" stand out as a major obstacle to the region's development (Fukuyama 1995).

The post-communist transition was a historically unique event that brought about a complete transformation in a peaceful way. The historical weight of this achievement could not be overstated. However, the new reality has been a disappointment for many. Among the troubles that emerged in the process were growing inequalities, financial and employment insecurity, persistence of corruption, indolent politics and faulty legislation. There were also cognitive problems, including the disillusionment related to the perceptions of breaking the social solidarity contract, a division between the winners and losers, cancelling certain social safety net privileges, and hostility towards vicious capitalism (Kornai 2006).

A highly unionised and bureaucratised welfare sector lagged behind in reform. There was a lack of clarity in reform goals and functioning and the tax burden of various social services remained largely unclear. Restoring proportions being between the overblown welfare promises and economic sustainability led many beneficiaries towards poverty (Kornai 1997). The welfare reforms contributed to the overall disappointment.

Finally, there was the problem of the state paternalism that Kornai (1988) dubs "the greatest despotism imaginable". The socialist oppression put restrictions on property and entrepreneurship, choice of profession, job and working conditions, consumer choice, household savings and investment. The limited freedom had its economic as well as moral implications. Therefore, cautious of the continuity of the de-humanised bureaucratic system, Kornai advocated personal and economic freedom as a basis for overall transformation and for health care system reform in particular (Kornai & Eggleston 2001b).

2.2.2. Institutional implications of the doctrine change

The change of regime had implications going far beyond market allocation as understood in neoclassical economics: in fact, it touched upon all levels of social and economic life. New Institutional Economics (Williamson 1998, 2000) provides a comprehensive framework that enables accounting for its full ramifications. So far as the purpose of institutions is to create order and reduce uncertainty, non-market institutions determine the feasibility and profitability of economic activity (North 1991). From the institutional perspective, the metamorphosis of post-communist countries has been the most profound.

At the level of social embeddedness, the events of 1989-91 catalysed a redefinition of values, traditions and cultural norms that in an undisrupted course of history would have taken

centuries. Open and liberalised market economies gave rise to consumerism and exposed the populations to the western world of possibilities and increased expectations of quality and responsiveness of goods and services. The societies adopted income stratification and individualism, and the family fabric of society has been subject to gradual change with implications for household production, informal exchange and caring. In those aspects, transition marked a new era of fast paced convergence to Western countries. Altruistic beliefs perpetuated, but the scope of individualism and solidarity had to be rebalanced. This had implications for the redistributive function of the government, and new measures for maintaining efficiency while reducing inequalities were required. New expectations, needs and wants applied to health care as much as to other consumption patterns. Legal regulations were rewritten accordingly, beginning with the constitution, to set the fundament for the new socio-economic order. New organisational, legal and ownership forms emerged in compliance with this institutional environment, relying on markets and structure integration to optimise production and transaction costs. Finally, markets for goods, services and production factors enabled resource allocation based on price and quantity equilibria rather than input-driven central plans and rationing. This resulted in a rapid shift from shortage to surplus economy.

Engerman and Sokoloff (2003) argued that successful transformation was determined by flexibility of institutions rather than their optimality. The case for attributing growth to institutions was weakened by evidence of institutional development being endogenous rather than exogenous and a high degree of substitutivity of institutions. This is notwithstanding the fact that government credibility and protection of property rights are indispensable for economic growth. Engerman and Sokoloff concluded that societies with good institutions are more flexible and adapt better to changing internal and external conditions, while societies with poor institutions are unable to respond to changing conditions and take advantage of their opportunities, advantages and knowledge.

Assuming a historical perspective, Chavance (2008) considered "stylised facts" about post-communist transition: differences in reform strategies, macroeconomic performance, enterprise performance and response to changes in ownership and governance. He concluded that powerful formal and informal rules underlay different transition trajectories. Thurner & Kotzian (2001) demonstrated that similar institutional approaches can enhance our understanding of health care systems, their complex networks of formal and informal interactions, wants and needs, transition paths, as well as market failures.

2.3. Similarities and dissimilarities of the transition countries

The transformation of CEE/CIS health care systems, including the process explored in Chapters 3 to 5, can be seen as a natural experiment (McKee 2005) with set initial conditions and outcomes varying accordingly to the choice of HCS reforms and other relevant determinants.

The reforms are in focus of the subsequent chapters. Instead, the aim of this section is to discuss the remaining two assumptions: that of a homogenous starting point and of a variation in other factors relevant to HCS performance. The concept of one region has an inherent fallacy of implicitly putting countries such as the Czech Republic and Turkmenistan in one league. In fact, across the region, there exists a large variation in macroeconomic as well as broader human development conditions. Therefore, understanding the cultural, economic and environmental diversity is central to obtaining valid results, contextualising the findings as well as reaching binding, generalisable conclusions.

2.3.1. A shared inheritance

Described in Chapter 2.1 are basic characteristics of the Semashko model. The study of hospital governance in subsequent chapters assumes that these features were shared across CEE/CIS and constitute a common point of entry into transition. In reality, some deviations from the standard model existed, especially in the provision of primary and ambulatory care. For one, the scopes of curative and preventive tasks of primary care differed between countries. Grielen et al. (2000) established that General Practitioners (GPs) in CEE provided more comprehensive care and more often engaged in prevention than their CIS peers. A GP tradition existed in Hungary, Poland, and Romania, where in 1980 60 per cent of doctors were GPs. In contrast, the share of GPs in Bulgaria was negligible. Private practice was tolerated in Hungary, Poland, and Czechoslovakia, while it was strictly illegal in Albania, Bulgaria, and Romania. In Hungary, 16 per cent of health professionals were involved in private practice (Davis 2010). In Poland, prior to 1989, primary and ambulatory specialist care was provided privately, under the conditions of obtaining an administrative permit and maintaining employment in a public health care institution (Saltman et al. 2007). Local idiosyncrasies also concerned the extent of territorial governments and private sector participation. Quasi-decentralisation arrangements delegated facility management (Kyrgyzstan) or ownership (Latvia) to districts and municipalities. In Hungary social insurance made minor but material (approx. 10%) contributions to health expenditures. Patient fees for non-essential services were more common in CEE than CIS. The rules for central planning were in some cases modified, e.g. in Poland the allocation of resources to providers was based on the numbers of admissions, while in Hungary some market-based indicative planning was exercised. The main dividing line was between the USSR representing the classical model of Communist political economy, and satellite CEE countries that represented its minor deviations (Kornai 1992, 2000b). Furthermore, while based on unchanging foundations, the systems evolved in time, with the narrow heterogeneity of the Stalinist period widening in the later decades of political thawing. This short summary illustrates that local variations related primarily to primary and ambulatory care. On the other hand, the hospital sector with its core concepts of allocation and organisation was considerably less variant.

Therefore, the assumption of a shared starting point is not a strong one as far as the hospital sector is concerned.

2.3.2. Diverse economies and transition pathways

The situation is much less uniform in terms of economic and institutional development. The substantial initial differences became more pronounced, which is illustrated by the regional range of Human Development Index values doubling from 0.15 in 1990 to 0.30 in 2000. Throughout the 2000s, after the socio-economic shock of transition had been largely absorbed, a limited but steady convergence took place, which is reflected by the range decreasing to 0.26 in 2010 (Table 2.1). Globally, no post-communist country qualifies as "very high human development" (2010 HDI score greater or equal to 0.902). Half of the 22 countries are areas of "high human development" (score between 0.753 and 0.901), nine fall into the group of "medium human development" (score between 0.631 and 0.752), while Kyrgyzstan and Tajikistan nearly miss this category instead qualifying as "low human development" (United Nations Development Programme 2013).

This institutional diversity inspired researchers to identify clusters of countries that would enable further analysis and customise policy recommendations. A classification of political systems based on the Freedom House annual ratings of political and civil liberties was proposed by the World Bank (2002). The four resulting groups were (a) competitive democracies of CEE, (b) concentrated political regimes (e.g. Russia, Moldova, Ukraine, Bulgaria, Romania), (c) war-torn regimes (Armenia, Albania, Azerbaijan, Georgia and Tajikistan), and (d) non-competitive political regimes (Belarus, Kazakhstan, Uzbekistan, Turkmenistan). The clusters of countries are good predictors of various indicators of political development, e.g. veto point index, political executive turnovers, cumulative progress in transition towards market economy, or state capture index.

Fenger (2007) considers 19 indicators of governmental programmes, social situation and political participation. Based on a cluster analysis he argues that CEE/CIS region can be divided into three groups of welfare regimes: (a) Central and Eastern European, (b) former USSR, and (c) developing welfare states such as Romania, Moldova and Georgia. The first and second clusters have established governmental social programmes; however, CEE generally performs better with respect to income inequality, health outcomes and other measures of social development. The third group is less developed in terms of social and welfare parameters. In all post-communist clusters the levels of trust, social programmes and social situation are considerably lower than in comparator OECD countries. The differences are so large that CEE/CIS clearly form a separate socio-welfare group and do not seem to fit into the Western typology of conservative-corporatist, social-democratic, and liberal systems. Fenger also

concludes that a convergence between East and West is occurring, however, at a slower pace than expected.

Table 2.1: Human Development Index in CEE/CIS, selected years

Country	1990	(...)	2000	2005	2010
Albania	0.66		0.70	0.73	0.75
Armenia	0.63		0.65	0.70	0.72
Azerbaijan	..		..	..	0.73
Belarus	..		..	0.73	0.79
Bulgaria	0.70		0.72	0.76	0.78
Czech Republic	..		0.82	0.86	0.87
Estonia	0.73		0.79	0.83	0.84
Georgia	..		..	0.71	0.74
Hungary	0.71		0.79	0.82	0.83
Kazakhstan	..		0.66	0.72	0.74
Kyrgyzstan	0.61		0.58	0.60	0.62
Latvia	0.70		0.74	0.79	0.81
Lithuania	0.73		0.76	0.80	0.81
Moldova	0.65		0.59	0.64	0.65
Poland	..		0.78	0.80	0.82
Romania	0.71		0.71	0.76	0.78
Russian Federation	0.73		0.71	0.75	0.78
Slovakia	0.75		0.79	0.81	0.84
Tajikistan	0.62		0.53	0.58	0.61
Turkmenistan	..		..	..	0.69
Ukraine	0.71		0.67	0.72	0.73
Uzbekistan	..		..	0.62	0.64
CEE/CIS range	0.15		0.30	0.28	0.26
Global min	0.20		0.23	0.26	0.30
Global max	0.88		0.92	0.95	0.95

Source: United Nations Development Programme, Human Development Reports, 2013.

CEE/CIS range represents the spread between the highest and the lowest reported values, illustrating the varying severity of the 1990s' socio-economic shock and the 2000s' slow convergence of the region. Global minimum and maximum are the lowest and highest values reported across 186 surveyed countries. The lower boundary is set by Niger or Democratic Republic of the Congo, the highest – by Norway or Australia.

2.4. Macroeconomic and socio-demographic challenges of transition

2.4.1. National product and aggregate health spending

Health care transition cannot be fully explained if detached from the broader economic change. Given the high GDP dynamics and low initial health expenditures as share of income of post-communist countries, this area provides for an impactful aspect of HCS inputs. Higher national income ceteris paribus generates more resources to be used in the health care process, leading to better outcomes at any level of HCS efficiency. In line with the hypothesis of luxury good at the national level (Getzen 2000), the effect of growing GDP is typically magnified by increasing shares of national income being allocated for health expenditures. Common to nearly all post-

communist countries was also an early deterioration of both macroeconomic output and health outcomes. Although reasons for the worsening health status were more complex and featured a broader destabilisation of social conditions, the decline in GDP offered an important factor driving the HCS instability (Nemec & Kolisnichenko 2006).

Every CEE/CIS country experienced to some extent a macroeconomic decline, and in consequence decreasing real wages, inflation, increasing inequality and poverty. Health care revenue collection was disturbed by a turbulent political environment, tax base constrained by decreased economic output, growing informal sector, weak tax authority capacity to raise revenue, war and conflict, external influences (the EU, aid donors, etc.) as well as legal uncertainty, changing rules of the social contract and faltering trust in the state. Mossialos and Dixon (2002) refer to the above as contextual factors of revenue collection: situational, structural, environmental and cultural. Expenditure pressures necessitate greater financial resources obtained through increased taxes, which in turn induce more informal sector economic activity that diminishes the tax base. This vicious circle perpetuates in countries with weak tax authorities and leaking social benefit systems.

The lack of stability prompted the search for an alternative, stable source of health care revenue, outside of political influences over the central budget. As a result, nearly half of the analysed countries turned to social health insurance contributions. However, the payroll-based earmarked contributions did not avoid the problems that undermined tax-based financing. The contribution base declined in many countries as a result of population ageing and higher dependency burdens, unemployment, low shares of economically active population (creating the extra burden of vast groups claiming disability benefits and early retirements), declines in incomes, public and private companies' bankruptcies, and various forms of tax evasion (Preker et al. 2002).

The fiscal context is essential in explaining regional differences and attained levels of health objectives, on a par with health care system reforms. The level of government health care spending depends on its fiscal capacity (i.e. tax base) and on the priority given to health (reflected by the share of budget allocated). With respect to the latter, the low-priority approach to health care typical of the communist systems persisted in many countries, particularly in the lower income brackets in CIS. The international pattern of higher income countries relying more on government spending generally holds in CEE/CIS. This prioritisation contributes to explaining differences in achieved health policy goals at any given level of income. Considering both above factors, there has been a great variation in the region. However, despite ongoing reform and dynamic economic growth, countries tend to maintain their relative positions (Kutzin & Jakab 2010).

Table 2.2 illustrates regional differences in the national product, the depth of the economic recession that followed the fall of Communism, and the expansion of economies throughout the 2000s. Except for one Poland, all countries experienced an economic decline over the period 1990-1995. By 2010, Georgia, Kyrgyzstan, Moldova, Tajikistan, and Ukraine, did not manage to regain the 1990 levels of economic output. Despite varied rates of growth, countries largely maintained their relative positions: the correlation between 1990 and 2010 GDP p.c. ranks is very high at 0.9.

Table 2.2: Real gross domestic product and growth dynamics

	*GDP**	*GDP as % of 1990 GDP*			
Country	**1990**	**1995**	**2000**	**2005**	**2010**
Albania	3,910	92	123	156	196
Armenia	2,938	58	78	139	167
Azerbaijan	4,754	39	52	95	187
Belarus	6,434	65	90	133	194
Bulgaria	7,529	91	95	130	153
Czech Republic	16,367	95	103	124	138
Estonia	10,146	77	108	163	163
Georgia	6,138	29	41	59	74
Hungary	13,120	89	104	129	129
Kazakhstan	7,089	63	76	123	154
Kyrgyzstan	2,524	49	60	68	80
Latvia	10,109	61	84	129	128
Lithuania	12,500	59	76	114	124
Moldova	4,583	40	36	52	61
Poland	8,182	110	144	168	212
Romania	7,853	92	87	119	139
Russian Federation	12,626	62	68	94	112
Slovakia	12,693	85	100	127	159
Tajikistan	2,961	35	33	51	66
Turkmenistan	3,749	55	62	127	198
Ukraine	8,063	48	46	69	75
Uzbekistan	2,002	73	82	100	139

* GDP p.c. PPP$

Source: World Bank, World Development Indicators, 2012.

The relationship between the HCS and the economy is a bilateral one. There is a strong macroeconomic case for strengthening the health system; conversely, a weak HCS will impede the GDP growth and undermine the country's international competitiveness. Suhrcke et al. (2005) observe that health and wealth are subject to a mutually reinforcing feedback loop. There are various approaches to explaining this relationship: individual, household and macro-level economic impacts, cost-of-illness, as well as "full income" indicators of social welfare that account for health as both a consumption and investment good. At the individual and household level, health proxies can be used to explain productivity, wages, labour force participation, absenteeism, provision of informal care, educational outcomes, etc. At the macroeconomic

level, health is a well-established predictor of growth and contributes to explaining wealth differences between high and low income countries. Cost-of-illness studies capture resources used for medical treatment as well as productivity lost due to poor state of health. In developing countries, the burden of disease relates primarily to communicable diseases, maternal conditions, nutritional deficiencies; in developed countries, instead, the challenges are of non-communicable nature, including cardiovascular, diabetes, injuries and mental disorders. "Full income" measures of the economic output, e.g. Human Development Index, correct for shortcomings of GDP by factoring in non-market goods such as health outcomes. Furthermore, the HCS directly contributes to the economy as one of its biggest industries, with the average share of health in GDP at 6.61 per cent in the 22 countries (WHO HFA-DB, WHO estimates, 2009). In terms of the labour market, in 25 EU countries, health and social care amount to ca. 9 per cent of all workforce (Suhrcke et al. 2005). In sum, investing in health care is essential for closing both health and income gaps between and within industrialised and emerging countries.

2.4.2. Trends in social and demographic determinants of health

The transition countries faced severe difficulties in securing financial assets for an uninterrupted HCS operation. On the other hand, parallel changes affected the demand for health and efficiency of health production (Grossman 1972). These include higher educational attainment, higher demand for health care and expectations of quality (result of higher income, education and open borders), population trends (zero or negative growth rates coupled with population ageing), the changing structure of disease burden including chronic diseases but also relatively high risk factors leading to infectious and acute conditions (Waters et al. 2008). In particular, environmental and lifestyle changes that result in cost pressures on the HCS were triggered or amplified by the shifting doctrine. In so far as these factors are subject to regional differences, they are relevant for the discussion of regional differences in the HCS performance. Briefly discussed below here are selected factors, with the aim of indicating broad ramifications of the changing socio-demographic landscape.

Economic inequalities

The magnitude of increases in inequality alone distinguishes the post-communist region (World Bank 2000b). The complexity of the post-communist transformation and the break in institutional continuity had immense implications for the political, economic and social life as well as likely adverse consequences for economic development (World Bank 2000c). Increases in poverty and unemployment were accompanied by less tangible costs of displacement, the loss of social belonging, uncertainties, growing inadequacies of knowledge and skills, as well as an emerging division between winners and losers of the transition process. Economic insecurity, deterioration of the health and education systems, and growing social strains all contributed to the inequalities that emerged not only in the economic but also psychological and social

dimensions. Throughout the 1990s, economic inequalities increased considerably (Table 2.3) in both higher and lower income countries. Tajikistan, Moldova, and The Russian Federation were particularly strongly affected, with Gini coefficient increases of nearly 20 points. Along with income, inequalities by age, education, area and health status deepened, with a notable exception of gender differences that were subject to a decline (Heyns 2005). In the 2000s, in parallel to expanding economies, the inequalities somewhat lessened. These changes were likely to have an impact on health care access and utilisation, and consequently on health outcomes. Chapter 6 provides evidence on this problem in a comparative study of seven CEE countries.

Table 2.3: Inequality of household disposable income distribution (Gini coefficient)

	*GDP**	*Income Gini coefficient*		
Country	**2000**	**1989-90**	**2001-02**	**2008**
Tajikistan	969	28.1	47.0	32.6[1]
Kyrgyzstan	1,507	27.0	37.7	37.3
Uzbekistan	1,632	28.0	26.8	37.3
Moldova	1,657	25.1	43.5	35.3
Armenia	2,295	25.1	..	30.9
Turkmenistan	2,322	27.9	..	..
Azerbaijan	2,490	30.8	37.3	33.7
Georgia	2,502	30.1	45.8	41.3
Ukraine	3,696	22.8	36.4	27.5
Albania	4,800	..	28.2	34.5
Kazakhstan	5,406	28.1	..	29.3
Belarus	5,810	22.9	24.5	27.2
Romania	6,838	23.7	35.3	31.2
Bulgaria	7,118	23.3	37.0	..
Latvia	8,529	26.0	35.8	36.6
Russian Federation	8,613	26.5	45.6	42.3
Lithuania	9,518	26.3	35.7	37.6
Estonia	11,002	28.0	39.3	..
Poland	11,753	27.5	35.3	34.2
Slovakia	12,726	..	26.7	26.9
Hungary	13,674	22.5	26.7	..
Czech Republic	16,887	19.8	23.4	..

* GDP p.c. PPP$, [1] 2007

Sources: World Bank, World Development Indicators, 2012; Heyns, 2005; United Nations Development Programme, Human Development Reports, 2013.

The age structure of population

The general understanding is that population ageing is a process that is argued to result in major financial pressures on health care systems. The cost pressures are projected to increase despite the cost per individual falling over time (OECD 2006), due to "healthy ageing" policies and the fact that major health costs come at the end of life (Zweifel et al. 1999). The problem of increasing demand for health care and long term care is coupled with a growing dependency ratio that determines the level of human and financial resources available in the HCS.

Population ageing is a global trend that constitutes another source of pressure on the transition systems. Between 1990 and 2010, nearly all CEE/CIS countries (with the exception of Kyrgyzstan and Tajikistan) experienced considerable increases in the share of population aged 65 and more (Table 2.4). Bulgaria, Estonia, and Latvia have the most aged populations, with the said measure in excess of 17%. In the region at large, the share of population aged 65 and more increased from 37.9m in 1990 to 46.6m in 2010, corresponding to 9.8% and 12.2% of the total population, respectively.

Table 2.4: Share of population aged 65 or more (%)

Country	1990	1995	2000	2005	2010
Albania	5.3	6.2	7.4	8.4	9.7
Armenia	5.6	8.4	10.0	12.0	11.1
Azerbaijan	4.2	4.7	5.6	6.8	6.6
Belarus	10.6	12.5	13.4	14.4	13.6
Bulgaria	13.1	15.1	16.6	17.2	17.5
Czech Republic	12.5	13.1	13.7	14.0	14.8
Estonia	11.7	13.6	15.2	16.7	17.2
Georgia	9.3	11.3	12.5	14.6	14.3
Hungary	13.4	14.3	15.1	15.7	16.5
Kazakhstan	5.9	7.2	6.8	7.9	6.8
Kyrgyzstan	5.0	5.4	5.5	5.6	4.4
Latvia	11.9	13.6	15.6	16.9	17.8
Lithuania	10.9	12.3	13.9	15.2	16.1
Moldova	8.3	9.0	10.0	11.2	11.2
Poland	10.1	11.1	12.3	13.2	13.6
Romania	10.4	12.0	13.4	14.8	14.9
Russian Federation	10.2	12.1	12.4	13.8	12.8
Slovakia	10.1	10.6	11.1	11.5	12.1
Tajikistan	3.8	3.8	3.6	3.9	3.5
Turkmenistan	3.8	4.1	4.3	4.6	4.1
Ukraine	12.2	13.8	14.0	16.1	15.5
Uzbekistan	4.0	4.3	4.3	4.7	4.4

Source: World Bank, World Development Indicators, 2012.

Education and schooling

There are many mechanisms through which education can be linked to risk factors, health production, utilisation of medical care and health outcomes. Cutler and Lleras-Muney (2006, 2012) provide comprehensive overviews of various linking mechanisms as well as international evidence thereof. Education displays a positive correlation with per capita income, which connects to different lifestyles as well as occupational diseases. The basic hypothesis posits that ceteris paribus additional years of education contribute towards better health outcomes. Table 2.5 demonstrates the growing educational attainment in the post-communist countries. Between 1990 and 2010, mean years of schooling increased in all countries by 1.8 years on the average.

In Hungary, Kazakhstan, Latvia, and Lithuania, this translated to an increase of over 30%. The Czech Republic and Estonia are regional leaders in the quantity of education, with the average period of schooling exceeding 12 years.

Table 2.5: Mean years of schooling, ages 25+

Country	1985	1990	1995	2000	2005	2010
Albania	7.6	8.5	9.3	9.9	10.2	10.4
Armenia	9.6	10.1	10.4	10.8	10.8	10.8
Bulgaria	8.5	8.9	9.3	9.4	9.7	9.9
Czech Republic	10.5	10.9	11.4	11.9	13.1	12.3
Estonia	8.8	9.3	10.5	11.7	11.9	12.0
Hungary	8.8	8.7	10.4	11.2	11.5	11.7
Kazakhstan	7.0	7.7	8.8	9.9	10.2	10.4
Kyrgyzstan	7.4	8.1	8.6	9.2	9.2	9.3
Latvia	6.9	7.5	8.8	9.4	10.1	10.4
Lithuania	7.5	8.3	9.1	9.9	10.7	10.9
Moldova	7.3	8.0	8.6	9.0	9.4	9.7
Poland	8.3	8.4	9.1	9.5	9.7	10.0
Romania	8.6	9.0	9.5	9.9	10.1	10.4
Russian Federation	7.8	8.5	8.9	9.6	9.7	9.8
Slovakia	10.4	10.6	11.2	11.2	11.6	11.6
Tajikistan	8.3	9.0	9.6	9.9	10.0	9.8
Ukraine	8.2	9.1	10.4	10.7	11.1	11.3

Source: Barro & Lee, Educational Attainment Dataset, 2011.

Diseases of civilisation

While disability adjusted life years attributable to communicable diseases and injuries remain high in CEE/CIS as compared to Western Europe, in 2000 the leading contributors were ischaemic heart disease and cerebrovascular disease, followed by mental disorders (Powles et al. 2005). Lifestyle changes conducive to the occurrence of those conditions were in part triggered or enhanced by the ongoing transformation. The overall burden of chronic conditions and diseases of civilisation is increasing at a high pace, constituting another source of cost pressures on the HCS and risk on individuals and households (Suhrcke et al. 2007). Overweight and obesity are one of the major concerns; if unchecked, obesity and associated illnesses can generate up to 6% of total health care expenditures, and impose further costs in the form of lost productivity (Knai et al. 2007). These factors may hinder historical trends in economic growth and improving health outcomes.

CEE/CIS shares the global patterns of risk factors and diseases of civilisation, in such aspects as mental illness, microbial resistance to antibiotics and re-emerging epidemics, with the possibility of regressions in human development. Table 2.6 exemplifies with fact by collating selected indicators of early and late stages of transition. Diabetes and cancer became more

Table 2.6: Selected indicators related to diseases of civilisation

	Diabetes prevalence (%)		*Cancer prevalence (%)*		*Circulatory system diseases (hospital discharges per 100,000)*		*Mental & nervous system conditions as % of all death causes*		*Tuberculosis incidence (per 100,000)*	
Country	**1991**	**2009**	**1990**	**2005**	**1992**	**2010**	**1989**	**2009**	**1989**	**2010**
Albania	..	0.11	..	..	399[3]	767	2.3	3.2[6]	21.8	13.5
Armenia	1.05	1.45	0.62	0.82	831	1,262	0.7	0.5	19.6	43.3
Azerbaijan	0.62	1.21	0.43	0.28	1,175	584	1.1	0.8[6]	42.9	70.6
Belarus	1.19[3]	2.08	1.20[3]	2.01	3,227[3]	6,126	1.0	1.7	36.4	52.7
Bulgaria	1.12	..	1.71	3.07	1,881	3,617	0.8	1.0	25.6	32.0
Czech Republic	4.76	7.47	1.83	4.62	2,475	3,086	1.1	1.3	18.4	6.0
Estonia	..	..	1.60	2.77[5]	2,397	3,327[9]	0.9	2.9	26.9	21.1
Georgia	1.13	1.56	0.58	0.67	938	982	0.6	0.9	29.8	104.6
Hungary	..	..	..	..	2,799	3,678	1.6	3.2	35.6	15.4
Kazakhstan	0.70	1.10	0.63	0.79	1,499	1,858	0.7	1.1	80.5	120.7
Kyrgyzstan	0.39	0.59	0.46	0.37	1,142	1,403	1.0	1.2	49.7	103.8
Latvia	1.20	2.99	1.43	2.42	2,298	2,884	1.0	1.8	32.1	40.8
Lithuania	0.94	2.16	1.13	1.99	2,680	4,490	1.6	1.5	37.5	53.2
Moldova	1.03	1.54	0.84	1.04	1,607	2,418	0.9	1.5	52.5	115.7
Poland	..	..	..	..	1,894	2,885[9]	1.2	1.9	42.6	18.3
Romania	0.66	2.73	0.80	1.64	1,773	2,982	1.4	1.0	63.4	85.8
Russian Federation	1.24	1.88[8]	1.13	1.67	2,074	3,479[8]	0.8	1.1	42.8	83.0
Slovakia	3.76	6.22	0.34	0.48	2,282	2,689	1.0	1.3	28.5	7.1
Tajikistan	0.37	0.25	0.24	0.11	841	933[9]	1.1[2]	1.2[7]	50.7	91.5
Turkmenistan	0.39	0.32	0.23[1]	0.21	1,060	1,698	0.9	..	60.9	64.1
Ukraine	1.68	2.58	1.30	1.84	2,696	3,744[9]	0.9	1.4	39.2	74.1
Uzbekistan	0.45	0.42	0.29[1]	0.32	1,249[4]	1,653	0.9	1.2[7]	53.1	59.8
Average increase		68.7%		39.1%		41.6%		43.4%		38.9%

[1] 1991, [2] 1992, [3] 1993, [4] 1994, [5] 2003, [6] 2004, [7] 2005, [8] 2006, [9] 2009

Source: World Health Organisation, European Health for All Database, 2012.

prevalent among patients in the region, with respective increases of 69% and 39%. Circulatory system diseases are putting higher pressure on the health systems, with an average 42% increase in related hospital discharges per unit of population. The share of mental and nervous system conditions among all causes of death increased by 43% between 1989 and 2009, which reflects the growing burden of ill mental health. Finally, the region took a step back with respect to the control of tuberculosis. The numbers of newly diagnosed cases per unit of population grew by 39% between 1989 and 2010.

Other factors exogenous to health systems

Selected risk factors continue to play an important role in driving premature mortality. McKee and Shkolnikov (2001) identify injuries, violence, alcohol consumption, smoking, poor nutrition and a rapidly changing environment as highly relevant to low life expectancy of men in CEE/CIS, as compared to women and men in Western Europe. Moreover, Stuckler et al. (2009), in a hotly debated paper (Gerry et al. 2010, Earle & Gehlbach 2010, Stuckler et al. 2010), attributed increasing short-term adult male mortality rates to rapid mass privatisation, through the channels of stress and unemployment. In addition, strife and conflict occurred in the region as highly destabilising forces for health care systems. For example, the Kosovo crisis and consequent flow of refugees resulted in a 20 per cent population increase in Albania in a matter of 40 days, with an enormous impact on the HCS and its reforms that were in progress at that time (Nuri 2001).

2.5. Emerging health care systems

2.5.1. Motivations for change

The transformation of former Semashko systems runs in parallel to overall social and economic transition. It was thus marked by the same features of reducing direct state involvement and control through decentralisation, pluralisation, empowering a variety of stakeholders, as well as introducing market signals and elements of competition in resource allocation (Preker et al. 2002). The universal objectives encompassed reducing the excess capacity and over-dependence on hospital care, strengthening primary care, improving microefficiency, providing conditions for innovation, flexibility and responsiveness, as well as enhancing accountability and transparency. At the same time, there was a strong public expectation of maintaining the universality of the public scheme. Despite these similarities, the timing, pacing and scope of change varied between countries.

Health care system reform was motivated by a range forces (Shakarishvili & Davey 2005). First was the presence of the socialist inheritance with low system efficiency and deteriorating excessive networks of facilities, adjustment of which was inhibited by the state monopoly. The

burden also included poor and deteriorating health outcomes, compared to Western Europe. Secondly, the recessions discussed above caused substantial reductions in health care budget allocations. Thirdly, there was a general consensus that health should be given a higher priority in the national economic and social policy agenda, contrasting with the non-productive status it was given in the previous system. Recognising the strategic importance of health would take the form of higher proportions of national income devoted to health care as well as building conditions for individual success and international competitiveness. Fourthly, there was the ideological drive to depart from the communist system, fuelled by the influence of international organisations and a blind belief in western ways.

There is a sizeable body of literature describing, analysing and assessing reforms in health care systems of the region in the last two decades. Financing aspects of health reform stand out in prominence as far as the literature on the topic is concerned. This special attention given to health care financing and payment mechanisms is reflected on the following pages. The aim of this section is to provide a health system context for the discussion and analysis of changes in the hospital sector governance in Part II of the thesis.

2.5.2. General reform directions

Shakarishvili and Davey (2005) as well as Rechel and McKee (2009) provide syntheses of broad reform patterns in the region. The chief reform among those identified is dissolution of the integrated systems of budget financing and state provision and subsequent replacement of general tax financing with social health insurance in half of the analysed countries. This was seen as a form of decentralisation as it transferred the health financing prerogative from the government to a public agency. Given the dominant public ownership of health providers, this had important implications for the nature of payer-provider relations, which shifted from integrated and budget-based to contractual and often involving an element of competitive tendering. These contractual relations, in turn, relied on establishing new payment mechanisms for provider reimbursement. Incentives conveyed by various increasingly sophisticated provider payment systems influenced both the quantity and quality of medical services supplied in the public system. Overall, the gravity of social health insurance (SHI) has been so large it is branded a catalyst for transition (Ensor & Thompson 1998).

Another major characteristic of health care transition in a large group of countries is pluralisation and empowerment of various sector stakeholders with new responsibilities, incentives and rights. For one, this involved the abovementioned shift of planning, contracting and monitoring of provision from the MOH to autonomous or semi-autonomous SHI agencies. Secondly, it took the form of transferring the responsibility for health care from the MOH and its regional branches to respective structures of sub-national government. This de-concentration concerned tools that gave the territorial authorities the power to shape their health networks,

such as setting capacities through planning and development strategies, licensing, etc. Thirdly, ownership of the majority of facilities (bar national centres and university hospitals) was either devolved to sub-national governments or privatised. The expansion of the private sector was pronounced in primary and ambulatory care, less so in the hospital sector. The private sector growth was fostered by both privatisation of public facilities and establishing new provider organisations by international and domestic entrepreneurs. Fourthly, the pluralisation encompassed handing control over the medical profession to specialised professional associations, including licensing, developing guidelines, setting norms and conducts of practice, monitor implementations of changes, auditing, and at times partaking in negotiating provider contract conditions.

Another group of reforms concerned strengthening primary care, often through encouraging general practice centred on family medicine, as well as reinforcing public health, while de-emphasising hospital care. These efforts meant to re-introduce balance between prevention, outpatient and inpatient care.

As observed by Ensor (1993), all the above changes assumed, explicitly or implicitly, a shift towards individual choice and personal responsibility. The shift from general taxation to earmarked payroll tax marked a change from universal entitlement to individual entitlement linked to the payment of obligatory contributions. Improving information systems enabled identification of eligible individuals, a function that had been weak in the initial years, thus accentuating the equity concerns of terminating the universal entitlement. These processes led to increases in individual health-related financial risks. More often, however, an unintended by-product of the reforms was a soaring reliance on out-of-pocket (OOP) payments resulting in substantial inequalities in health care utilisation.

Table 2.7 below provides information on basic characteristics of transition and post-transitions HCSs in terms of health care financing. Notable is an overall increase in health care spending in terms of its share of GDP, which between 1990 and 2010 averaged 2.1 percentage points, and was as high as 7.8 points in Moldova and 5.7 points in Georgia. In absolute terms, over the same period, Albania, Belarus, and Poland, more than tripled their per capita health expenditures. On the other hand, Kyrgyzstan, Tajikistan, and Turkmenistan show a decline in real per capita health expenditures. The generally decreasing participation of public sources in health care financing (from 70.3% in 1990 to 56.9% in 2010, on the average) translates directly into higher OOP spending, because of the negligible role of private voluntary prepayment schemes. The context and significance of these outcomes is explained in the subsequent sections.

Table 2.7: Basic information on health expenditures in CEE/CIS

	TEH pc (PPPS)					*TEH as a share of GDP (%)*					*Public share of TEH (%)*				
Country	**1990**	**1995**	**2000**	**2005**	**2010**	**1990**	**1995**	**2000**	**2005**	**2010**	**1990**	**1995**	**2000**	**2005**	**2010**
Albania	156	116	305	417	501	4.0	3.2	6.4	6.8	6.5	84.0	49.9	36.1	40.2	39.0
Armenia	123	110	150	199	216	4.2	6.5	6.5	4.9	4.4	59.8	30.8	17.4	30.4	40.6
Azerbaijan	203	109	116	351	524	4.3	5.9	4.7	7.8	5.9	61.2	23.8	18.5	11.3	20.3
Bulgaria	404	350	426	717	789	5.4	5.1	6.0	7.3	6.9	81.4	73.3	59.6	58.4	54.5
Belarus	205	289	372	582	700	3.2	6.9	6.4	6.8	5.6	68.7	71.7	76.6	76.5	77.7
Czech Republic	972	1,092	1,105	1,474	1,778	5.9	7.0	6.5	7.2	7.9	84.9	90.9	90.3	83.7	83.7
Estonia	367	494	582	826	999	3.6	6.3	5.3	5.0	6.0	53.0	89.8	77.5	77.2	78.7
Georgia	273	90	175	310	461	4.4	5.1	7.0	8.6	10.1	62.5	5.2	17.6	22.3	23.6
Hungary	781	854	961	1,414	1,242	5.9	7.3	7.0	8.3	7.3	84.4	84.0	70.7	69.7	69.4
Kazakhstan	315	208	225	354	468	4.4	4.6	4.2	4.1	4.3	62.3	64.0	51.0	62.0	59.4
Kyrgyzstan	125	85	70	100	124	5.0	6.9	4.7	5.8	6.2	66.7	57.6	44.3	40.9	56.2
Lithuania	447	397	618	832	1,094	3.6	5.4	6.5	5.9	7.0	72.0	74.2	69.7	64.6	73.5
Latvia	391	357	508	804	866	3.9	5.8	6.0	6.2	6.7	56.1	66.3	54.4	55.9	61.1
Moldova	179	156	102	198	326	3.9	8.5	6.1	8.4	11.7	74.4	68.7	52.6	49.8	45.8
Poland	415	493	649	856	1,295	5.1	5.5	5.5	6.2	7.5	80.3	72.9	70.0	64.7	72.6
Romania	304	..	356	515	609	3.9	..	5.2	5.5	5.6	61.4	70.3	67.7	80.2	78.1
Russian Federation	381	419	465	615	720	3.0	5.3	5.4	5.2	5.1	66.8	73.9	59.9	62.0	62.1
Slovakia	754	656	836	1,139	1,772	5.9	6.1	6.6	7.0	8.8	84.9	88.5	85.0	72.1	65.9
Tajikistan	177	32	45	73	116	6.0	3.1	4.6	4.8	6.0	72.6	41.5	20.4	23.6	26.7
Turkmenistan	187	63	94	152	185	5.0	3.1	4.0	3.2	2.5	66.4	60.3	79.6	63.3	59.4
Ukraine	266	263	205	386	466	3.3	6.7	5.6	6.9	7.7	69.7	61.5	52.1	55.2	56.6
Uzbekistan	118	76	93	95	162	5.9	5.2	5.7	4.8	5.8	72.1	69.6	44.1	47.9	47.5

Source: World Health Organisation, European Health for All Database, 2012.

Given negligible levels of private voluntary health insurance in the region, decreasing public shares of TEH largely reflect the growing reliance on out-of-pocket payments.

2.5.3. Public revenue collection and pooling

Revenue collection

With respect to the public system revenue, three groups can be identified. Firstly, there are countries that rely primarily on general and local taxation in financing their health care expenditures. This may be a result of non-reform (e.g. Belarus, Ukraine), or an introduction of social insurance that accounts for a minor proportion of public health funds (e.g. Russia from 1993, Albania from 1995, Georgia between 1995-2004, see Table 3.2). In those countries, tax revenue is typically a combination of local, regional taxes and national (federal) funds, which depending on local priorities are used for recurrent services, upkeep and investment, as well as for equalisation between regions orchestrated by the central government (Preker et al. 2002).

Secondly, there are states that used to belong to the first group but whose public HCSs collapsed as a result of the previously discussed pressures and disturbances. In 2010, there were seven countries where public spending accounted for less than half of TEH (WHO HFA-DB): Azerbaijan (20.3%), Georgia (23.6%), Tajikistan (26.7%), Albania (39%), Armenia (40.6%), Moldova (45.8%) and Uzbekistan (47.5%). In these countries private expenditures are the dominant form of health financing, and voluntary prepayment alternatives to OOP payments failed to fill in the coverage gap of the public system.

Thirdly, there are countries that replaced the tax-based model with what is broadly referred to as Social Health Insurance. The term SHI is often used as a label for any system that detaches health care fund collection and pooling from general taxation and instead links it to payroll-based social insurance contributions. However, it does not unambiguously determine the system operation. The heterogeneity of CEE systems shows that actual implementations may substantially deviate from the original Bismarck social security model or its present variations in Western European countries.

There are a number of aspects that contribute to the vagueness surrounding the term SHI. For example, establishing a quasi-independent agency for contracting with providers need not have implications for how funds are collected. In Albania, the Health Insurance Institute financed primarily through taxes is responsible for paying to medical care providers and for the reimbursement of qualified generic drugs (Marku 2010). Similarly in Latvia, tax revenues are raised and pooled by the National Revenue Service, and accordingly to an allocation by the Ministry of Finance transferred to the State Compulsory Health Insurance Agency, which carries out the contracting of providers (Tragakes et al. 2008).

Moreover, the calculation of contributions is not in each case based on payroll earnings or subject to a limit. Kuszewski and Gericke (2005) enumerate the idiosyncrasies of the Polish

system: contributions are calculated based on all revenues from employment and non-agricultural economic activity (closely corresponding to personal taxable income), there is no ceiling for contribution size, various bases are applied for calculating contribution rates (e.g. a preferential treatment of farmers who enjoy full benefits in exchange for token payments), and insurance coverage and contributions are unrelated to health risks. For the above reasons, Wagstaff and Moreno-Serra (2009) classify the Polish as well as Latvian systems as not being "pure" SHI. Those systems have also been referred to as quasi-tax or earmarked-tax hybrids. Among the payroll-based systems, variations exist in the size of social insurance contributions and their nominal split between employers and employees. Kornai and Eggleston (2001b) show that among 10 CEE countries in 1997 the size of contributions ranged from 3.4 to 23.5 per cent of earnings, divided in various proportions between employers and employees with 50:50 being the most common distribution.

Another distinguishing feature is the share of SHI in the overall health expenditures. Can a system financed in 1/3 from taxes, 1/3 SHI contributions and 1/3 from OOP expenditures be justified as a social insurance model? One way of settling the key establishing feature of a SHI system may be the reliance on contractual payments that provide marginal revenue and thus alter incentives faced by providers. The marginal revenue has to be distinguished from budget allocations that may comprise a major part of the overall budgets of provider organisations. The presence of contracting, competitive tendering, improved transparency and accountability, as well as non-budget payment mechanisms are features more prominent and influential in terms of resource allocation than the measures of revenue collection. The problem of inadequacy (or meaninglessness) of the "tax vs. SHI" division was highlighted by Kutzin (2001) who observed that countries may alter their allocation mechanisms without altering the sources of funds. This can explain the case of Hungary, where in 2009 SHI contributions accounted for 32.5% of TEH, yet the system was generally regarded as SHI. In fact, the Hungarian SHI explicitly covers only recurrent spending on services, while capital and maintenance costs are covered from central government grants (Gaál et al. 2011). In Moldova, a SHI system complementary to tax financing was based on contributions originally set at 4% of payroll salary split evenly between employers and employees, and further offset by a 2% decrease in income tax. SHI revenue generated this way was intended to incentivise the providers otherwise relying on tax-based budgets (Atun et al. 2008). In Russia, 2/3 of hospital resources come from line-item budgets. However, hospitals are also reimbursed based on a DRG system and at the margin could be expected to respond to its incentives. However, evidence shows the efficiency gains have not materialised due to deep-rooted managerial practices, DRG system faults and its low impacts on hospital budgets (Tragakes & Lessof 2003). Similar problems marked the development of case-mix payments in the hospital setting in Kyrgyzstan (Ibraimova et al. 2011). Nonetheless, the overall effects of adopting a purchaser-provider split and a contracting model in this country

were positive, resulting in improvements in the scope, quality, efficiency and equity of care (Atun 2007).

With respect to the above, it can be argued that some countries made a more complete transition towards SHI. Looking broadly at the region, however, general tax revenue persisted in health care financing mixes, from being the dominant form of financing in unreformed HCSs, as in Belarus, to complementary functions of central government grants for capital investments and territorial governments' subsidies, as in the Czech Republic.

A further distinction in SHI can be made between countries that rely on third party payer competition (Czech Republic, Slovakia, and briefly Poland in 1999-2002) and those that maintained the monopolistic position of a SHI agency.

The above discussion reveals a wide variety of HCSs with respect to public financing. On one hand, in numerous countries the state participation remained strong. In 2010, in Estonia and Romania, public spending accounted for over 78% of TEH, and nearly 84% in the Czech Republic (WHO HFA-DB). At the other extreme there are the aforementioned collapsed HCSs of CIS and Central Asia, where the state participation may account for as little as 20%.

Pooling of public funds

Changes in funding mechanisms also had implications for the pooling function of public health financing. The pooling function is essential for two aspects of health insurance: (1) risk management, by enabling the law of large numbers and narrowing the losses around their expectation, and (2) solidarity transfers from low to high risks and from more to less affluent individuals. Consequently, the pooling structure of a HCS is central to its economic efficiency, equity of financing and utilisation, financial protection, and administrative cost. In particular, pooling fragmentation can be efficiency enhancing, as it is the case in the systems of regulated insurer competition, or wasteful, when it sustains uncoordinated and unequitable allocation of resources between parallel systems.

Preker et al. (2002) look into the problem of pooling across CEE/CIS over two decades. They find that pools of funds were fragmented between many actors and levels, including local government health agencies, health insurance funds and their local branches. At the same time, potential gains from multiple financing agents were absent, as the sector structure would not feature competitive pressures. Instead, each of the purchasers enjoyed a situation of monopoly. This problem extended to overlapping population coverage and exclusions from statutory coverage. CIS countries were generally disadvantaged in terms of risk protection, equity and allocative efficiency, compared to smaller and more reformed countries of CEE where the fragmentation of revenue channels had been reduced. Nonetheless, two issues persisted across

the region: Firstly, recurrent expenditure was detached from capacity investments, and facility owners often chose to increase their capacity without considering the operating expenditures that fell on other agents. Secondly, a class of costly medical establishments, such as university hospitals and national centres, were financed from both SHI and by central budget grants. The latter source of financing protected them from making the necessary capacity adjustments. In Hungary, such university clinics were found to be the leading category in recurring sector debt.

Broad reform strategies addressing the problem involved integration, centralisation and reduction in payer numbers. These strategies materialised in reducing the numbers of funds, creating a single territorial fund and transforming territorial funds into branches of a national fund. Coming from fragmented tax-based systems, one reform possibility was a shift to the SHI model, which proved successful in Kyrgyzstan and Moldova (Kutzin et al. 2010b). In competitive insurer systems such as in the Czech Republic, risk-adjusted contributions represent a key design feature of a pooling system, as risk equalisation inhibits risk selection and increases system efficiency and affordability. Kutzin et al. caveat that the transferability of reform experiences in this regard is limited. In particular, an introduction of SHI alone does not automatically solve the pooling problem, given the multiplicity of possible budget revenues present in the overall flow of funds. Moreover, pooling reforms are necessary but not sufficient for higher equity and economic efficiency; actual performance critically hinges also on resource allocation mechanisms. A successful reform in Estonia simultaneously decreased pool fragmentation and furnished a complementary change in provider payment mechanisms.

Consequences of SHI introduction

It is a stylised fact about communist health care that its low priority is reflected in the shares of aggregate and public expenditures in GDP. Kornai & McHale (2000) challenge this idea and provide contrasting evidence of post-communist spending on health being higher than what could be expected based on their macroeconomic parameters. This evidence is derived from a model of economic development and age structure of population, based on a sample of CEE and OECD countries in the early 1990s. The relatively high levels of spending may reflect both difficulties in cost containment during transition and the popular expectation of universal health care.

The adoption of social health insurance in CEE is argued to be an endogenous process (Rechel & McKee 2009). For example, it had no relation to EU accession. It was, however, inspired by Western European HCSs, particularly the German model, and Western experts exerted certain influence on decision-makers. Goals for SHI included improved efficiency of allocation and elevating the priority of the sector by allocating funds independently from the general government budget – a step up from the low priority under the Semashko system. Separation of financing and provision was also aimed at increasing transparency, mobilising additional funds,

reducing fragmentation and duplication of functions, containing costs, limiting political interference, and introducing market forces that would lead to increased responsiveness through the elimination of incompetent public providers and a concurrent development of the private sector. The latter function has been limited, however, because outside the Czech Republic and Slovakia the SHI model involved single national funds which maintained strong state monopsony in purchasing of services (Szende & Mogyorosy 2004). Macroeconomic and institutional difficulties hampered a full development of the model, however, leading to incomplete coverage and a failure to raise revenue adequate to needs. This revenue inadequacy was a result of low wages, high unemployment, large informal sectors, corruption and tax evasion. Consequently, long-term sustainability of SHI has been questioned even in the most successful reformers. Population ageing is the main concern, but it has also been argued that increased health contributions lead to higher costs of labour, potentially hampering economic growth, while positive implications of SHI for quality and efficiency have been limited by the continued presence of public monopolies.

Wagstaff and Moreno-Serra (2009) explore consequences of SHI adoption in the CEE/CIS and Southern Europe, using non-adopter tax-based systems as a control group in a natural experiment. They find evidence of the SHI introduction leading to increased government spending as well as a higher share of government expenditures being allocated to salaries in the health sector. The latter evidence may support the hypothesis that SHI reforms are favoured and facilitated by health professionals. Other reported statistically significant implications include reduced average lengths of inpatient episodes as well as increased bed occupancy rates and numbers of hospital admissions. Despite these impacts, they find no evidence of improving health outcomes.

In the literature of the subject, SHI adoption stands out as the region's most prominent reform. No wonder then that the "tax or insurance" dilemma attracted considerable attention of policy-makers, leading to a need for an unequivocal recommendation. The most recent voices tend to be ambivalent on the relative merits of the two scenarios, however.

Although SHI seems to have the upper hand in the theoretical debate, evidence shows tax-based systems hold well in equity of access and financing, which are among central objectives of HCSs. Wagstaff (2010) overviews pros and cons of social health insurance vis-à-vis tax-based health care financing. He argues that, despite the theoretical prowess, experience indicates tax-financed systems have the merits of universal coverage, less labour market distortions and more equitable revenue generation. These merits are particularly important for developing countries, but also developed countries are increasingly inclined to take them into consideration. Commonly recognised areas of SHI superiority include a more meaningful purchaser-provider split, provider autonomy, strategic purchasing, and furnishing a unified, one-fits-all model for

the entire population. Wagstaff argues that shortfalls in these aspects are not insurmountable for tax-based systems, and many innovative purchasing and provision arrangements exist around the world. On the other hand, he shows the many practical disadvantages of SHI: smaller tax base potentially reducing health revenue, weak incentives to contribute leading to non-enrolment and evasion, regressive nature that contributes to the informalisation of economic activity, a long period of adjustment until reaching high coverage with incomplete coverage persisting also among formal sector employees in well-established systems, the disadvantageous creation of separate risk pools, and the inevitable problem of risk selection in multiple insurer schemes.

The above arguments are counterweighted with evidence from Euro Health Consumer Index (Eisen & Björnberg 2010, Björnberg 2012) that assumes the consumer perspective and measures HCS performance across patient rights and information, accessibility (wait times), outcomes, range of available services, and pharmaceuticals. The study, which provides an overall weighted score as well as partial performance scores, has been continuously expanded since its launch in 2005 and in the 2012 edition featured the total of 42 indicators across 34 countries. One of the overarching findings is that consistently "Bismarck outperforms Beveridge", with the exception of small and well-managed National Health Service (NHS) type systems of the Nordic countries. Non-SHI countries generally fail to attain high levels of access and responsiveness, and rank at best in the middle of the European ladder in terms of consumer satisfaction. Two possible explanations of this fact are hypothesised by the authors: first, an integrated national system typically falls under one management. In the case of England's NHS, for example, this implies managing ca. 1.5 million staff within a single structure, posing natural challenges to efficiency and responsiveness. Second, in centralised systems the primary accountability is to politicians and decision-makers rather than to patients, increasing the chances of government failure.

The experience from CEE/CIS transition shows that the dominant revenue collection mechanism is of secondary importance. On one hand, in countries with strong economy and high labour force participation, taxation performed satisfactorily. On the other, the introduction of SHI did not compensate for a lack of solid revenue base in some other countries. Sheiman et al. (2010) discuss the reform implications that go far beyond the preferred source of health revenue. For one, SHI may introduce implicit or explicit decentralisation, changing the central government ability to control the overall level of funding. Centralised systems enable better control of funds and facilitate effective reform. In terms of revenue collection by the tax authority or the SHI agency, the relative merits do not permit an unequivocal recommendation. The former functional specialisation allows administrative efficiency and reduces the scope of health funds' tasks to pooling and purchasing. The latter integrated collection, however, has been successful particularly in the multiple insurer systems in the Czech Republic and Slovakia.

More importantly, SHI adoption has considerable secondary implications for the system performance, as it alters the stakeholder structure by introducing a major specialised agency. This may, in turn, catalyse other changes, inclusive of flexibility and efficiency of resource allocation. This is because tax revenue is subject to the treasury rules with often tight control and rigid rules based on budgeting, while SHI brings about strategic purchasing and enables the formation of active purchasers in place of passive payers. Moreover, some experiences show that in lower-income countries SHI may contribute to higher predictability and stability of financing.

2.5.4. Statutory coverage and benefit entitlement

Reductions in breadth (coverage), scope (benefit categories) and depth (cost-sharing) in the public systems were largely forced by macroeconomic difficulties and the increasing gap between the nominal and actual services provided within public systems (Gotsadze and Gaál 2010). The resulting restrictions differed between groups of countries, however, the regional patterns are largely consistent with previously discussed clusters by macroeconomic performance (Chapter 2.3.2) and by sources of HCS revenue (Chapter 2.5.3).

In higher income CIS countries, the limitations concerned both scope and depth. While the coverage remained universal, the scope of benefit categories narrowed and a substantial part of the cost were moved onto users of care. The latter took the form of formal and informal payments as well as rationing that induced market purchase of health services. In poorer CIS countries, in particular Central Asia, considerable reductions affected all three dimensions of public sector provision. Other than those mentioned above, the public system retrogression also encompassed an explicit termination of public entitlement for large groups of population. In the countries that experience the collapse of their HCSs, public financing took the complementary function and many benefits were shifted to market provision financed from OOP payments. For the benefits that remained in the public sphere, implicit forms of rationing became primary, including waiting times, informal payments, and deteriorating quality (Preker et al. (2002).

In CEE, restrictions related primarily to depth and to some extent in scope (Preker et al. 2002). The basic benefit package remained wide, with certain countries taking the approach to enlist benefits excluded from public provision (a "negative" definition). The Czech Republic was the only country to produce a "positive" definition by enlisting all benefits explicitly covered. In either case, excluded were non-essential services such as cosmetic surgery, non-basic dental services, and non-curative treatments such as spa and sanatoriums. Attempts to exclude curative treatments faced strong opposition of patient groups, physicians, the parliamentary opposition as well as the public at large.

Furthermore, the breath of coverage in CEE was adversely affected by tying the public benefit entitlement to the payment of SHI contributions. This condition was rarely enforced initially, due to system fragmentation and the lack of overarching information systems that would enable identification of users. As measures for identification of the eligible improve, policy-makers have to face the problem of exclusion of certain groups from the statutory system, which amounts to a form of discrimination of non-contributors in the social policy. These developments have coincided with the growing prevalence of flexible forms of employment (fixed-term contracts crowding out full employment) that exist outside the social security system. The temporary contracts exclude increasingly large groups from the social safety net, public health care in particular, and are especially problematic in the context of opportunities offered to young people. The European Commission recognised this problem and has been searching for a labour market solution (dubbed "flexicurity") that would offer "the best of both worlds", i.e. flexible employment and social protection (Viebrock & Clasen 2009). Controversies around labour market practices have become more pressing in the recent years, resulting in intensified research activity (e.g. Cazes & Nešporová 2007 on consequences of flexicurity in CEE) as well as heated policy debates, e.g. currently in Poland (Olczyk 2013).

Some countries attempted to address the issue of demand-side moral hazard by reducing the depth of statutory system coverage. Minor user co-payments were introduced in the Czech Republic in 2008, Slovakia in 2003 and Hungary in 2007. Baji et al. (2011) find that a widespread lack of approval for the user fees stemmed from (1) discrepancies in understanding the purpose of the fee system: cost-consciousness according to policy makers and insurers and an additional source of revenue according to consumers and the medical profession, (2) a mistrust in the government management of public resources, reinforced by no perceptible improvements in HCS performance and lack of transparency in the funds' disposition, and (3) negative personal experiences with fees: bureaucracy, increased waiting times, additional paper work, handling cash during visits and less time or attention given by the doctor. Consequently, the feasibility of a co-payment policy hinges on careful planning, effective implementation and a good communication strategy that makes its benefits visible to all HCS stakeholders.

Sheiman et al. (2010) alert that any major reform of the revenue collection mechanism leads to a revision and rearrangement of existing social commitments. This in particular concerns the individuals who were eligible for benefits under tax-funded system but would be excluded should they fail to pay the SHI contribution. In CEE/CIS, the best reformers addressed the problem of reduced coverage by explicitly trading-off the benefits of maintaining the universal coverage and contribution-based entitlement, which requires an additional safety net for non-contributors. Openly stating public priorities and strategies in this regard promotes transparency, stability of financing and financial protection of individuals. Neglecting the issue creates gaps in coverage, induces a growth in OOP payments, and erodes equity of financing. Additionally, the

principle of universal coverage is often effective only nominally, while in reality insufficient financing leads to rationing through queues and informal payments. This, in turn, forces spot market purchase of services or result in forgoing care when it is not affordable. These issues, which threaten the objectives of equity and health protection, are explored in detail in Chapter 6 with respect to seven CEE countries.

Restriction in the entitlement faced serious opposition based primarily on equity concerns. Difficulties of reform encompassed the political process, the public debate, challenging change in constitutional courts (Ukraine, Hungary), and manipulations upon policy implementation by political and social interest groups. The lack of transparency, communication or stability, hasty and frequent change regarding the basic benefit package, e.g. in Ukraine, Hungary and Armenia, resulted in lower public confidence and increased the influence of providers who used it to extract additional payments from patients, both informally and by providing the excluded benefits in private practice. The inadequacy of the basic package to available resources led to informal rationing ("informal benefits package") that excluded the government from the process, shifted decision powers to providers, lessened equity, access, efficiency and trust in the public system. Experience shows that timing, sequence and a broader sector reform context were central to successful restructuring of public benefit entitlement. Strengthening the purchasing function, tackling the system inefficiencies with improved incentives and securing adequate financing for the reformed system set the right ground for further changes, including a re-definition of basic benefit entitlements. Conversely, targeting the scope of public entitlement alone will likely fail to increase system performance and be thwarted in the political process. The experience of CEE/CIS shows that rationalising the unrealistic promise of unlimited and universal care made by the communist regime can be successful if implemented as part of a comprehensive sector reform (Gotsadze & Gaál 2010).

2.5.5. Provider payment mechanisms in the public system

According to Fuenzalida-Puelma et al. (2010), payment mechanisms were an essential and often primary component of health care transition. They had the most direct impacts by promoting efficiency, changing the resource allocation, and reducing excess capacity. Payment mechanisms operationalised policy goals through new incentives and were the reform component most visible to provider organisations. The mechanisms introduced in CEE/CIS increased transparency and responsiveness by allocating a greater proportion of health expenditures to patient care as well as stimulated the quantity and to a lesser extent quality of services. Successful transition countries introduced changes in a stepwise manner, allowing time for institutional adjustment, building capacity, formation of structures, developing ownership and trust both within the contracting parties and the general public. They recognised that providers require capacity and autonomy to respond to these new incentives. The provider

payment reform has to be supported by political commitment to HCS development in other complementary areas of reform. Reforming provider payment mechanisms has been an ongoing process, especially for case-mix payments that require continuous elaboration. Moreover, parallel HCS changes generated synergies. For example, separate fund pools for primary, outpatient and inpatient care offer an opportunity to use customised provider payment mechanisms for best resource allocation in each area. Admittedly, separate pools may also disallow the shifting of funds between pools towards more cost-effective interventions.

In practice, creating a quasi-autonomous agency may facilitate the shift from historical budget allocation to more active mechanisms. Established treasury systems of budgeting and control are a barrier to reform, and a dedicated agency can be launched with new goals and funding rules without this inheritance. With the exception of Kazakhstan and Uzbekistan, countries that did not establish a dedicated purchasing agency failed to incept new payment mechanisms. Rationalising superfluous capacity appeared to be facilitated by organising the purchasing function under the MOH, which provided Kyrgyzstan, Lithuania and Hungary with leverage in their reforms. However, new purchasing agencies performed sub-optimally due to insufficient (Kazakhstan) or excess (Albania, Georgia, Hungary) accountability and control. These features are a consequence of lower transparency and institutional immaturity that distinguishes transition countries from their industrialised peers (Fuenzalida-Puelma et al. 2010).

Szende and Mogyorosy (2004) identify waves of provider payment reforms looking at eight countries of CEE. Firstly, they note a switch from input to output-related financing in the early 1990s. This was a result of the above-discussed departure of historical budgeting and adopting new contractual provider payment systems. Secondly, at the time of publication, they observe an emerging shift from output to outcome-related systems. They also argue that variations in payment mechanisms contributed to differences in health care accessibility across the region.

In the primary care sector, the region relied mainly on capitation payments adjusted for the age structure of the population, with possible adjustment or equalisation payments and fee-for-service (FFS) for preventive care (Szende & Mogyorosy 2004). Ensor (1993) notes that at early transition stages payments in primary care followed the British model of contracted GPs paid by the number of patients. Rechel and McKee (2009) argue that this shift to capitation payments failed to incentivise quality, and that most CEE countries (with a notable exception of Hungary) did not redirect funds in order to de-emphasise hospitals and strengthen primary care, as pictured in the reform rhetoric. Nonetheless, a case study from Poland shows that GP fundholding with prospective capitation payments for a wide scope of care created incentives for bottom-up integration of primary and secondary providers (Kowalska 2007). This integrated care network relied both on formal (contracts) and informal (trust and reputation) arrangements.

Evidence showed the network improved the quality of care for patients and promoted better working conditions for medical staff.

In outpatient care, fee-for-service has been the most commonly used basic mechanism, supplemented with capitation, per case payments, and caps at the provider or national levels (Szende & Mogyorosy 2004).

In hospital care, payment schemes alternative to historical budgeting were most commonly case-mix for acute care and per diem in chronic care. Various case-mix systems were employed and sometimes coupled with FFS, per diem (Estonia, Latvia) or adjusted for ward types or lengths of stay (Poland). Hungary relied on a DRG system, while the Czech Republic and Slovakia used global budgets as the basis for hospital financing. Fee-for-service was experimented with in the hospital setting. Under this arrangement, hospitals would be reimbursed, according to an agreed price schedule, per every defined unit of service provided, e.g. medical procedure (test, consultation, surgery) or a day of hospitalisation. Each unit of service would be billed individually and independently of the context in which they were provided (e.g. patient characteristics, other procedures used in managing the case). The system was abandoned due to a rapid escalation in volumes of services (Szende & Mogyorosy 2004).

More light is thrown on the development of financing mechanisms by Langenbrunner and Wiley (2002) who produce a complete list of hospital payment mechanisms that emerged in the region. The following units are identified as bases for the payments: (1) procedure or service, (2) bed-day, (3) discharge, (4) case-mix adjusted unit, (5) global budget, and (6) capitation. Considering the 22 countries in scope for this thesis, the authors find that in the early 2000s the most prevalent forms included line-item budgets (11 countries), case-mix (9 and 4 in development), per diem (6), global budget (2 and 2 in development) and capitation (1 in development). Most countries would rely on mixes of the above mechanisms. Russia provided an extreme case of using, to some extent, each of them. This could be explained by the sheer size of the country and the fact that republics participating in the Federation operate largely independent HCSs.

The evolution of dominant payment mechanisms in the hospital sector across CEE/CIS is presented in Appendix I, Table A.1. The most recent arrangements are discussed in the next chapter and shown in Table 3.2: Extended typology of CEE/CIS hospital sector as of 2010. The tables illustrate the fact that FFS, which came into prominence in the 1990s as the primary mechanism for third-party payments to hospitals, has been phased out in favour of patient-based systems, currently operated in most countries of the region.

Impacts of the above-described changes are explored by Moreno-Serra and Wagstaff (2010) who econometrically analyse a panel of 28 transition countries over the period 1990-2004. They

establish that both FFS and case-mix payment schemes contributed to higher private OOP and aggregate national spending on health. They also produce evidence of FFS schemes increasing the numbers of hospital admissions and case-mix reducing lengths of inpatient episodes. The latter is also found to have limited beneficial effects on avoidable mortality. The study in Chapter 5 of the current dissertation expands the Moreno-Serra and Wagstaff model in several dimensions, most importantly by accounting for reforms of hospital governance that took place in parallel to the said changes in provider payments.

2.5.6. The role for private funds in health financing mix

The unfolding HCS transformation assumed, implicitly or explicitly, that individual responsibility would be enhanced compared to the period of communism. This translated, among other things, to increased individual participation in costs of health care provision. Generally speaking, the explicit reforms aimed at the problem of moral hazard by introducing user co-payments, and at a rationalisation of the public benefit package. Implicit increases in private expenditures were typically unintentional products of restrictions in breadth, scope and depth dimensions of statutory coverage discussed in Chapter 2.5.4. Deficiencies of the statutory insurance public system were the primary cause of an increasing role for private financing.

Growing reliance on OOP payments is one of the major trends that characterise post-communist health care transition (Preker et al. 2002). It materialised under the form of formal fees and growing informal payments across the region, and a nearly complete shift to OOP financing of health care in the case of collapsed HCSs. The growing OOP expenditures were a result of public financing being inadequate to the generous benefit entitlement and the excess capacity, in particular of hospitals. This shifted the provision of certain services outside the public system, to individually financed spot market purchase. This was particularly true in the case of primary and outpatient specialist care (Lewis 2007). The process was reinforced by the growing willingness to pay for services of higher quality or perceived quality. Table 2.7: Basic information on health expenditures in CEE/CIS illustrates the fact that in many countries the public share of TEH has decreased considerably. Given the negligible presence of private voluntary health insurance, this translates to a growing proportion of health care spending originating from patients' pockets.

The shift towards markets for medical care had its parallel in an informal allocation of public resources. Here, similarly, individuals would be willing to pay for jumping the queue and securing extra quality or attention of medical staff. This secondary circulation within the public system took the shape of a sophisticated shadow market, with informal prices reflecting the supply and demand of care, expected quality as well as qualifications and reputation of physicians. Given their informal and illegal status, these markets proved surprisingly persistent, and patients were well aware of the rules and prices (Shahriari et al. 2001). Informal allocation

and corresponding envelope payments for statutory services remain a major force shaping the supply of goods and services as well as efficiency, equity and health outcomes of transition and post-transition HCSs. The problem is explored in Chapter 2.7 in the broader context of corruption in health care.

One of the potential directions for health care financing reform in Eastern Europe has been voluntary health insurance. Prepayment schemes offer a possibility for reducing the unrealistically generous scope of guaranteed services that the HCS are not effectively able to afford. Rationalising the services provided under the statutory scheme would result in a range of services being subject to co-payments or altogether excluded. The coverage gaps in the statutory scheme could be filled in by commercial insurance markets with supplementary or complementary insurance products.

So far, this has not been the case. For over two decades of transition, voluntary prepayment schemes failed to develop to any material levels in the funding mix. The still generous statutory insurance does not provide a complete explanation of this fact, as old EU member countries often offer equally comprehensive statutory benefit packages and this fact does not preclude voluntary insurance feasibility. Jowett (2004) argues that theoretical frameworks for voluntary health insurance (VHI), which evolved in the context of industrialised countries, may be incompatible with developing countries of differently structured economy and society. In CEE/CIS, hypothesised barriers to VHI development include a limited ability to pay, the lack of consumer and employer confidence, the lack of private infrastructure and insurance know-how as well as a historical non-practice of this form of financing (Thomson & Mossialos 2009).

Moreover, the presence of informal payments was also identified as an impediment to VHI. Lewis (2007) argues that informal payments are an implicit form of insurance for current and future health needs, especially with respect to surgery and inpatient care. The existence of informal risk-sharing arrangements, coupled with an approval for and availability of corruptive opportunities, form a barrier to uptake of formal health insurance (Jowett 2004). This is because individuals may fear of having to pay twice, as VHI does not fully protect against informal payments, uncertainty around the quality of VHI-funded services vis-à-vis those secured in informal ways, and the fact that making an envelope payment in the event of illness may be a more affordable way of achieving the same goal (Thomson 2010).

On the policy side, VHI remains a viable component of the health care financing mix, however, evidence of its impacts on HCS objectives is mixed even in carefully regulated systems. Notable problems include segmentation and limited risk solidarity in systems that enable opting-out, resulting erosion of the public system and deteriorating conditions of access, as well as the use of public resources to subsidise privately insured patients that are predominantly well-to-do. Some the problems may be reinforced by policy flaws, such as permitting higher fees on the

privately insured and using tax incentives to subsidise the purchase of VHI (Thomson & Mossialos 2009). Overall, voluntary health insurance does not guarantee to relieve financial pressures on the public system.

Given the current immaterial role of VHI in CEE/CIS, reflecting the minuscule demand for non-statutory prepaid options, fostering the market would require consistent, long-term support and significant expertise in policy design in order to avoid market failures. The Dutch experience is illustrative of the two-decade time span and strong political commitment required to develop a fully-fledged system of risk adjusted private health insurance (Enthoven & van de Ven 2007). Given the costs of this undertaking as well as likely issues in its promotion, implementation and operation, VHI cannot be recommended as a natural direction for health care financing reform in CEE/CIS (Thomson 2010). The case for this solution may be stronger in the collapsed post-communist HCSs where OOP expenditures amount to more than 50 per cent of TEH. In countries such as Georgia, where the public system focuses on protecting the poor, VHI may be a viable option for ensuring access and financial protection for non-poor individuals.

Looking broadly at the emerging role for private financing of health care, it has to be noted that reductions in public participation were seldom well-received by the CEE/CIS populations. Attitudes and expectations have been the main challenge in expanding the private share of health financing mix. The challenge encompasses distrust in private financing agents and strong expectations of free and public provision, characterised by Kornai and Eggleston (2001b) as a deeply embedded need for a paternalistic state. These sentiments do not seem to have lessened over the two decades of transition. A recent survey study from Poland showed that, in the view of a vast majority of population, the government ought to guarantee access to free of charge health services (supported by 85% of the surveyed individuals), guarantee employment (85%), directly supply jobs (93%), and provide day care (95%) (Zagórski 2013). The study also confirmed the perceptions of insufficient quality, low value, and the issue of pricing publicly provided services below an adequate cost of production. A related problem is the rejection of the inevitable tax revenue implications of a paternalistic state. Should the post-communist countries pursue the Scandinavian model of welfare, they will have to accept the tax burden of 40-50 per cent of their GDP (Andersen 2011).

2.5.7. A new landscape of health care provision

Organisational pluralism and elements of internal markets were at the centre of changes in primary and outpatient specialist care provision (Ensor 1993). Reforms aimed at reducing the reliance on hospitals by promoting outpatient and preventive care were seen as a convergence towards Western standards, in particular the British approach to primary care. The WHO and the WB advocated the family physician model centred on solo or group general practice. This model was incorporated in a number of countries, mainly in CEE, despite the lack of tradition,

professional education, infrastructure and procedures. The GP model, as well as specialised outpatient clinics, were preferred by the WHO and the WB and assumed private sector provision. However, abandoning the concept of polyclinics, which underlay primary and outpatient specialist care for years, turned out to be premature. With the lack of polyclinics, the services became provided in numerous unlinked solo practices. This contrasts with the recent trend (e.g. in Germany) of creating conditions and incentives for integration and continuity in the areas of primary, specialist and long-term care (Rechel & McKee 2009).

Privatisation was an extensive and important process in transforming primary and ambulatory health care, especially in the Czech Republic, Georgia, Estonia, Hungary and Poland (Atun 2007). Oral health and pharmaceutical services were fully privatised in CEE and a similar trend has been advancing in CIS. As opposed to the hospital sector, this reform strategy has been widely accepted in CEE/CIS. Moreover, the establishments that remained under public ownership underwent devolution from a centralised, national structure to being owned and managed by their respective territorial governments (Nemec & Chubarova 2010).

The environment in which hospitals operate has changed significantly. Most input markets have been deregulated and privatised. However, the scope of privatisation of actual hospitals was not nearly as large as in non-hospital sectors, and a great majority of hospitals across the region remained in the public sphere. Here, autonomisation and New Public Management (NPM) have proven an influential alternative reform strategy. Private hospitals, greenfield investments or privatised state property, on the other hand, account for a small proportion of the sector's capacity. Governance and ownership transformation of the hospital sector are the focus of Part II of the present work.

Debate over privatisation

Privatisation and marketisation were at the centre of the policy debate in the early 1990s, the goal of which was to establish a new balance between the public and private sectors. The idea of the private sector being the driving force of transformation, in health care and the economy at large, had both its ardent supporters and sturdy opponents. Among the former were Lipton et al. (1990), who advocated creating a market economy and headlong privatisation of public companies. According to them, the structural transformation through a rapid sale of state enterprises or transferring them free of charge to the private sector was the long-term priority, complementary to short-run policies aimed at consolidating stability. On the other hand, Banoob (1993) provided an early voice warning against rushed privatisation as a cure for the ailments of transition. He acknowledged the policy drive towards privatisation, but identified problems relating to private health care in Western countries. For example, in seven out of nine studies OECD countries he found hospitals were predominantly publicly owned, the two exceptions being Japan and the US. Instead of relying exclusively on market forces, he recommended

investing in education, nurturing managerial capacity, holistic planning for sustainable sector development, decentralisation of financing from central to community-based and not-for-profit insurance schemes, quality standards and evaluation, and harmonious growth of the public-private mixed system.

More recent papers admitted that a larger degree of private sector participation could benefit post-communist populations by providing a synergy and alleviating the troubled public systems (Watson 2004). Albrecht (2009) discusses internal and external rationales for more extensive privatisation in CEE. The former encompass dissatisfaction with publicly provided services, privatisation being a critical component of the successful social transformation, and the need for re-introduction of private practice. Among the external reasons he points at patient rights, privatisation as a venue for choice and competition, as well as quality advantages and better overall performance. Nonetheless, both authors are aware of risks and obstacles: the challenges of equity and affordability, the possible creation of a two-tiered system, corruption and a lack of transparency, as well as an unstable and indolent political process unable to produce effective, non-cumbersome regulation that would steer the mixed sector towards desired policy goals.

Considering these problems, Nemec and Kolisnichenko (2006) provide a criticism of market-oriented reforms in selected CEE/CIS countries in the early 1990s. They indicate a number of political and institutional errors as well as severe regulatory capture that led to an overall failure of HCS marketisation. Firstly, reforms were influenced by foreign advisors (such as previously cited Lipton et al.) and organisations (the World Bank, the International Monetary Fund). The international experts tended to copy existing Western solutions (e.g. British fundholding, German SHI) and to privatise public property without ensuring the right institutional environment, which put at risk the stability of systems and health safety of citizens. Health care was often thrown in a bag of market reforms with other sectors of the economy; local conditions and HCS distinguishing features were overlooked or disregarded. For instance, marketization and privatisation in health care were launched before banking, insurance and capital markets gained stability in the region. Secondly, HCS stakeholders' strategies and behaviours differed from the patterns of mature Western democracies. Political interference and uncoordinated government interventions took place where markets performed well and were lacking where markets failed. Reform concepts were manipulated by the political and bureaucratic classes to benefit from the transformation, for example, by stripping public property but limiting the scope of competition in the newly established markets. This effectively converted state monopoly into another type of state-controlled or interest group monopoly. Until the present day, health care in the region remains dominated by public forms of financing and provision.

In CEE/CIS, New Public Management has proven an influential concept. On one hand, it enables quasi-private practices and health care delivery improvements without forgoing public

control of health establishments. On the other, in the context of asset stripping and government failure discussed above, it may be a pitch designed to justify the post-transition status quo. A number of adverse circumstances disallow full gains from this middle-ground arrangement, including low levels of financing, inadequate infrastructure, conflicting policies, ideological struggles over the change and poor leadership in implementation (Antoun et al. 2011).

2.6. Consistency and quality of reform

This section reviews the factors that shaped the directions and outcomes of HCS transition. Presented here are such reform aspects as vision and planning, clarity of goals, stability of the political process, disruptive events, timing and pacing, and various inhibitors. The discussion aims to complete the picture of reform circumstances on one hand, and provides a link between the emerging systems' characteristics and their deficiencies on the other.

2.6.1. Capacity for reform

The transformation of CEE/CIS health care systems was taking place during the turbulent time of rapid macroeconomic, institutional and social transition. Democracies in the region were new born. The continuity of traditions and rules was broken after the Fall of Berlin Wall; their legal foundations were being established anew. Consequently, the process of HCS reform suffered from the immaturity of institutions. Governments and governing coalitions were unstable, formed ad-hoc and short lived. The chaotic political process would bring to power accidental leaders and individuals unprepared for performing prominent duties. There was a lack of previous experiences or expertise in policy formulation, particularly in the aspect of transforming centralised to market-based systems. Policy debates or independent reviews of reform proposals were non-existent and not welcome by the governments. There was no long-term sector strategy. As a matter of principle, reforms were often revoked after a change of governing parties. Health system reforms were often led by medical professionals with no background in economics or social policy, instead, often determined to protect the interests of their own profession. It is also an interesting feature that CEE languages such as Czech, Polish and Slovak do not distinguish between "politics" and "policy". This linguistic nuance posits a significant cultural idiosyncrasy that has great consequences for the understanding of policy-making in those countries (Nemec 2008).

This extended to broader problems of low standards of governance and accountability, as professional and sustainable bureaucratic institutions were not well-established. In establishing quasi-autonomous, dedicated agencies such as SHI, the countries faced the challenge of providing accountability while fending off political interference. Given the low level of trust and the initial stages of civil society development, social mechanisms for accountability and supervision were not in place or were not reliable. Particular challenges in promoting

transparency and openness include clearly defining the roles and responsibilities of levels of government, managing structures and the public, fostering the culture of open information, changing the priorities and norms of collective decision-making, and high political costs of facing numerous interest groups entrenched in the existing structures (Savedoff & Fuenzalida-Puelma 2010). Davis (2010) identifies four early transition reform challenges: (1) unstable economic and legal environment and resource constraints; (2) reform leadership and coordination of economic and health reforms; (3) consistency and feasibility of intra-sectoral reform efforts, including insurance, health establishments, pharmacies; and (4) coordination of numerous government and non-government, national and international agencies that became involved in the reform process.

Given the strong presence of the state in the HCS, CEE/CIS reforms can be interpreted as steps towards the paradigm of New Public Management (Antoun et al. 2011). This approach assumes the central position of the government in empowering consumers, creating a culture of accountability, and implementing incentives that promote efficiency, equity and quality of health care. Considering the cases of Albanian and Russian transition, Antoun et al. argue that a delay and gradation in the implementation of reforms were driven by ideology-based scepticism towards the utilitarian direction of market reforms, contrasting with egalitarian foundations of the socialist system. At the implementation level, key problems involved limitations in human resources management, including a lack of previous exposure to market pressures and private sector practices, as well as deficiencies in health care infrastructure. Moreover, moral hazard and adverse selection undermined "well-intentioned but sub-optimally designed and managed" reforms of pharmaceuticals pricing, reimbursement and access.

2.6.2. Definition of goals and strategies

A consequence of low domestic capacity, as well as of shifting international influences, was a substantial reliance on external experts who offered leadership and advice in the reform process. At the level of broad objectives, the recommendations were hardly contestable. For example, the World Health Report (WHO 2000) promoted good health, responsiveness to expectations, and fairness of financial contributions and protection. The goals were achieved in four vital HCS functions: service provision, resource generation, financing, stewardship. The proposal was supplemented with strategic directions of reducing excess mortality of the poor and the excluded, managing leading risk factors, and placing health at the centre of the development agenda. However, a number of researchers point at the problem of little practical relevance of such a high-level plan. In spite of the post-communist transition being an unprecedented event, and regardless of their little understanding of local conditions, the expertise and recommendations of foreign experts often came unquestioned (Shakarishvili & Davey 2005, Rechel & McKee 2009).

Such recommendations provided an important platform for health policy-making in CEE/CIS. Delnoij et al. (2003) inspect the methods and influence of the WHO and the WB and confirm the anecdotal evidence of emphasising abstract ideas (accessibility, fairness, efficiency) without indicating mechanisms for the achievement of these goals. The two organisations would converge in a holistic approach to health, seeing it as a component of economic development, social participation and equity. Yet, they would shun any specific recipes for pressing regulatory questions regarding effective public-private mixes. Moreover, in the context of demographic and epidemiological change as well as macroeconomic instability, the international advisors are found exporting yesterday's solutions not tailored for the needs of tomorrow. Delnoij et al. conclude that CEE/CIS decision makers ought to give a lower priority to international expert advice, and instead focus on local conditions and future needs.

2.6.3. Absence or disregard of evidence

Personal ambitions of politicians and international experts often had considerable influence over reform directions (Nemec 2008). Major events, such as the adoption of SHI, are largely attributed to political aspirations of catching up with the West, rather than evidence-based strategy. This is also a consequence of the Soviet rejection of empiricism and the lack of understanding of empirical evidence in medicine. Rechel and McKee (2009) argue that this obstructed the progress of all CEE/CIS countries, and severely so among the Former Soviet Republics. The problem materialised in the lack of generation and sharing of evidence, no informed decision-making based on national statistics, the focus on ideas rather than local capacity building, and a negligence of changing population needs, from injury-caused and infectious to chronic diseases and managing comorbidities.

2.6.4. Flaws in reform design

The above-discussed lack of regulatory quality, stability, continuity experience and expertise led to policy design flaws and technical errors. Common were avoidable issues of technical and managerial nature, such as delayed SHI payments, the lack of data, inadequate patient information (McMenamin & Timonen 2002), paying providers on a fee-for-service basis without introducing cost-containment mechanisms (Ensor 1993), ignoring managerial capacity, decentralising assets without ensuring efficiency incentives, planning of long-term consequences and sustainability implications, introducing measures of accountability and equalisation of regional discrepancies (Shakarishvili & Davey 2005). The decentralisation process was often marked with ambiguity and duplication. New financing arrangements provided inadequate resources, leaving territorial governments with the burden of capital costs, facility investments and non-consumable medical equipment. Fragmentation of HCS networks was another issue, with overlapping areas of competence between local governments and insurance funds, owning bodies and chief physicians, primary and secondary care providers.

2.6.5. Time and pace of reform

A number of researchers stress that poor regulatory quality and outcomes were often caused by wrong timing and pacing of reforms (Knight et al. 2003, Nemec 2008, Shakarishvili & Davey 2005). A common idea propelling reforms in HCS and the economy at large was to depart from communist system as quickly as possible. This pressure for reform was a product of freedom aspirations, booming market activity and entrepreneurship, but also aimed at blocking the possibility of reinstating the communist rule. Consequently, fundamental changes in the 1990s were rushed, underprepared, and introduced without adequate consideration of long-term implications. Coupled with poor capacity for policy-making, this yielded many new laws and institutions lacking in legal and economic quality.

Poor reform quality led to the impossibility of new mechanisms to find a foothold in the system, as no interest group would support them. This was the case with the 1999 health care financing reform in Poland, which broke the national monopoly and replaced it with competing sickness funds (Roberts 2009). Its flawed implementation found no traction and the milestone reform was eventually revoked with the National Health Fund reinstated in 2003.

2.6.6. Stakeholder resistance

This example illustrates that, other than the quality of law-making, a major system overhaul requires a strategic approach to communication and building stakeholders' support. This prerequisite was the Achilles heel of transformative efforts and a common mistake made by reformers. Neglecting the importance of HCS stakeholders, alongside macroeconomic difficulties, can explain a share of unsuccessful reforms in the region. Reforms aimed at far-reaching marketisation and dismantling the public monopoly were particularly opposed and often thwarted by stakeholder groups, most notably physicians who defended their influence and vested interests. Sometimes, the creation of new agencies, e.g. health insurance authority, was a gambit aimed at breaking the continuity of the MOH dominance and restricting the room for its inefficient bureaucratic practices (Ensor 1993).

Decisions strategic for HCS transition can in fact be explicated with the presence of political veto players. Roberts (2009) argues that system deficiencies, macroeconomic factors, ideology and interest groups do not explain why the Czech Republic took the more liberal reform path than Hungary or Poland. He argues that the answer lies in political institutions; more specifically, in the presence of veto players in multi-party governments who are able to block reforms, and in the access of pro-change actors (e.g. physicians, insurers) to policy-making. Roberts further clarifies that a significant change can only take place in a small and rare window of opportunity.

Nemec and Chubarova (2010) enumerate key stakeholder groups and their conflicting motivations: populist parliamentary politicians seeking short-term benefits from maintaining the illusion of "free" health care; territorial governments unwilling to undergo network rationalisation and decommission unprofitable facilities; bureaucrats exerting their power through monolithic public health care organisations; hospitals exceeding ineffective budget constraints; doctors using their influence to extract formal and informal payments as well as using unclear public sector boundaries for private gain; patients not willing to accept any form of rationalisation of unrealistically generous statutory benefits; and insurers in most countries being passive, politically dependent, monopolistic payers rather than active purchasers.

Conflicting interests between central and sub-national governments are a particularly visible aspect of the stakeholder problem (Preker et al. 2002, McMenamin & Timonen 2002, Leven 2005). The purpose of increasing decentralisation was to facilitate the process of restructuring provider capacity, through changing the profile of, closing down or privatising unprofitable units. Limited funds allocated to devolved facilities were supposed to stimulate the process. Instead, purchaser agencies became new players in the sector, pursuing their own agenda of influence. Territorial governments' reluctance towards reductions in their provider networks led to an accumulation of debt, and the indebted territorial and organisational units were on numerous occasions bailed out by the states. Considering this outcome, the strategy of pluralism, despite its advantages of promoting yardstick competition, innovation and productivity, inhibited some desired processes: the rationalisation of provider capacity, re-balancing of primary and secondary care, development of integrated solutions, and holistic approaches to public health (Shakarishvili & Davey 2005).

Health workforce has proven an influential group that hindered reductions in excess capacity by adjusting facilities and staff. The resistance was primarily aimed at maintaining the benefits and informal privileges stemming from public sector employment. In the eyes of physicians, nurses, and other health professionals, defending the privileges was a means for compensating for inadequate remuneration and poor working conditions. This defensive attitude can be justified with the fact that economic growth and corresponding upward trends in health care expenditures did not translate into substantially increased salaries or greater employment satisfaction. Underpayment, deferred payment, job loss and limited opportunities for re-employment have been identified as major sources of health workforce dissatisfaction in the Czech Republic, Lithuania, Romania and Ukraine (International Labour Office 2002). The same factors contributed to low quality of care and fuelled workforce migration to Western Europe.

2.6.7. Regulatory capture and government effectiveness

CEE/CIS is a region with relatively high prevalence of corruption, which is reflected in various indicators, including the Transparency International Corruption Perceptions Index and the

World Bank Worldwide Governance Indicators. Selected values of these indicators are presented in Table 2.8. Corruption Perceptions Index is a proxy for the perceived level of corruption based on expert assessments and opinion surveys. The index takes the values from 0 (highly corrupt) to 10 (no corruption). Control of Corruption demonstrates the extent of public power use for private gain as well to the degree of state capture by private interests. Government Effectiveness is a World Bank indicator for the perceptions of the quality of public services, the quality of the civil service and its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government to policy commitments. Control of Corruption and Government Effectiveness estimates are obtained from an unobserved components model, based on expert assessments and opinion surveys. The values are reported as scores ranging from -2.5 to 2.5, where higher values correspond to less corruption or better quality of state governance (Kaufmann et al. 2010).

Corruption has strong links to the effectiveness at which the government operates and the state capacity to successfully steer a reform process. In Table 2.8, the strength of this relationship is reflected by the correlation values between effectiveness of governance and two measures of corruption, for each of the given years. In turn, government effectiveness can be strongly linked to the achieved level of economic output (in 2000, a correlation of 88%).

The presence of corruption has many negative implications for the operation of a HCS, as it does for economic development and equity at large. Corruption weakens public services and functions, misdirects public resources, limits both economic growth and social development, often undermines or redirects reform efforts, and has the primary adverse impact on the poor.

In the communist systems, corruption was entrenched at all levels of managerial, political, social, economic and cultural life. A World Bank report (2000a) informs that the problem was often reinforced by new corruption opportunities inherent to transition. The proliferation of corruption was fuelled by a simultaneous re-design of economic, legal and political institutions and a large-scale redistribution of state assets. CIS is a region with the highest perceived level of corruption in the world, while CEE is on par with Middle East/North Africa and Latin America. The more benign situation of CEE relative to CIS has its source in a more conclusive departure from the previous system, greater state capacity, civil society able to promote transparency and accountability, the advantageous legacy of public institutions, and the presence of political competition.

The World Bank report recognises two dimensions of corruption. State capture concerns the influence over formation of laws to the advantage of an interest group. This form of corruption, also referred to as regulatory capture, is relevant for the consistency and quality of reforms and the ability of newly introduced mechanisms to support the goals of efficiency and equity. Secondly, administrative corruption is the intentional imposition or distortion of existing laws,

Table 2.8: Selected measures of corruption and government effectiveness

Moldova	1,057	-0.23	-0.03	-0.08	-0.74	..	2.6	2.9	3.3	-0.64	-0.03	-0.73	-0.30
Armenia	2,295	-0.57	-0.76	-0.57	-0.59	..	2.5	2.9	2.7	-0.61	-0.65	-0.05	0.07
Turkmenistan	2,322	-1.83	-1.12	-1.48	-1.43	..	..	1.8	1.8	-1.05	-1.31	-1.62	-1.34
Azerbaijan	2,490	-1.06	-1.13	-1.03	-1.10	..	1.5	2.2	2.3	-0.88	-0.93	-0.68	-0.63
Georgia	2,502	-1.11	-0.91	-0.33	-0.23	..	..	2.3	4.1	-0.42	-0.67	-0.37	0.22
Ukraine	3,696	-1.03	-1.06	-0.65	-0.90	..	1.5	2.6	2.2	-0.88	-0.68	-0.46	-0.77
Albania	4,800	0.05	-0.83	-0.72	-0.40	..	..	2.4	3.2	-0.54	-0.84	-0.65	-0.20
Kazakhstan	5,406	-1.06	-1.00	-0.98	-0.91	..	3	2.6	2.7	-1.13	-0.67	-0.53	-0.19
Belarus	5,810	-0.97	-0.56	-0.89	-0.78	..	4.1	2.6	2.4	-1.06	-0.83	-1.11	-1.10
Romania	6,838	-0.23	-0.25	-0.16	-0.13	..	2.9	3	3.8	-0.82	-0.39	-0.08	-0.13
Bulgaria	7,118	-1.02	-0.11	0.12	-0.12	..	3.5	4	3.8	-0.96	0.01	0.26	0.14
Latvia	8,529	-1.02	0.10	0.39	0.30	..	3.4	4.2	4.5	-0.48	0.48	0.63	0.64
Russian Federation	8,613	-1.03	-1.06	-0.75	-1.12	2	2.1	2.4	2.2	-0.69	-0.68	-0.36	-0.28
Lithuania	9,518	-0.24	0.43	0.31	0.25	..	4.1	4.8	4.9	-0.22	0.35	0.88	0.72
Estonia	11,002	-0.21	0.76	1.00	1.00	..	5.7	6.4	6.6	0.54	0.88	1.04	1.18
Poland	11,753	0.53	0.66	0.33	0.48	5	4.1	3.4	5	0.90	0.65	0.61	0.64
Slovakia	12,726	0.55	0.36	0.59	0.32	..	3.5	4.3	4.5	0.62	0.44	0.99	0.92
Hungary	13,674	0.56	0.74	0.69	0.46	4	5.2	5	5.1	0.72	0.93	0.87	0.73
Czech Republic	16,887	0.58	0.33	0.60	0.46	5	4.3	4.3	4.9	0.65	0.66	1.01	0.98
Correlation with Gov't Effectiveness		0.86	0.96	0.97	0.93	0.94	0.82	0.89	0.92				

* GDP p.c. PPP$

Source: World Bank, Worldwide Governance Indicators, 2011; Transparency International, Corruption Perceptions Index, 2013.

in order to provide gains to an interest group. This form is further discussed in Chapter 2.7.4 in the context of informal payments and other uses of public office for private gain.

Hoff and Stiglitz (2002) liken rule of law to a public good that may fail to emerge spontaneously as a result of privatisation. In Russia, the post-communist transformation was marked by stripping of public assets and establishing an oligarch class, rather than by creating a market economy, conditions for economic efficiency, wealth creation, and rule of law. A rule of law will eventually be constituted for the protection of the new status quo, cementing property rights distribution biased towards the privileged group. This is likely to damage long-term growth and further enhance social distrust in public institutions. The latter problem is commonplace in the region where the levels of trust and social capital are low. These obstacles hamper innovation, cooperation and organisational solutions to existing issues, constrain developments of human and intellectual capital, and consequently lead to underperformance in allocative efficiency (Nahapiet & Ghoshal 1998).

2.6.8. Path-dependence

The above circumstances add up to the argument of Rechel & McKee (2009) that feasible policy options in CEE/CIS have been constrained by the presence of system path-dependence. This theoretical framework is sometimes used to explain why, despite extensive reform efforts and a visible convergence towards Western standards, HCSs of Eastern Europe also display considerable continuity in certain aspects. According to the path-dependence approach, government interventions may result from prior events rather than an explicit welfare analysis. In particular, the presence of a third-degree path-dependence would imply that there exist feasible arrangements for recognising and achieving better outcomes, but these outcomes are not obtained (Liebovitz & Margolis 1995). Path-dependent outcomes arise from incapacity of a process to shake free of its history, or non-ergodicity (David 2001). Explaining social and macroeconomic hardships of CEE/CIS transition with a historical lock-in is attempted by Roland (1990, 1992), Miurin and Sommariva (1993) and Liebovitz and Margolis (1995). These scholars demonstrate path-dependence with the continuity of nearly universal coverage, expectations of a paternalistic state, and maintaining extensive public prerogatives in health care.

On the other hand, Maarse (2006) argues that a high degree of path-dependence characterises privatisation processes not only in CEE/CIS, but also in Western Europe. In terms of social policies and welfare state characteristics, the region followed different directions, with CEE influenced by access negotiations and membership of the EU, countries like Moldova and Ukraine staying under the influence of Russian Federation, and Belarus remaining a quasi-military state (Fenger 2007). The case of Georgia, which introduced a liberalised health care market and reduced the public share of health spending to below the United States' level,

provides another counterargument and an example of a radically disparate scenario. This variety of experiences seems natural, given a common background of a half-century-long episode of communism on one hand, and the cultural, political and economic diversity on the other. This outcome may or may not be path-dependent: Kay (2005) provides a deep critique of the applicability of path-dependence to policy studies, particularly with respect to the clarity of the concept and its heavy reliance on the contributions of New Institutional Economics.

2.6.9. Idiosyncratic issues

On top of the processes and challenges characteristic of the region at large, certain countries faced idiosyncratic external events that marked their individual transitions. For example, Knight et al. (2003) point at newly established nations, such as Estonia and Slovakia, which had to establish their HCSs from the ground up, independently from the structures existing previously in Czechoslovakia and the USSR. Conflict and war were another set of events distorting transition pathways in the region. Nuri (2001) discusses the case of Albania that had its health system heavily burdened as a result of the Kosovo crisis in 1999. Albania, which at that time was in the midst of a hospital reform, faced waves of refugees in the need of shelter and aliments as well as social and health care.

2.6.10. Success stories

This section discussed the most common obstacles that impeded or debilitated reform efforts in the region. Abstracting from a considerable variety of transition experiences, Kutzin et al. (2010a) find that successful reformers were: clear about the policy objectives and their relative weight; understood available financing arrangements and composed them to address locally identified problems rather than copying foreign models; took a stepwise approach to reform implementation, often making purchasing mechanisms a starting area; re-defined their benefit packages in accord with other health care policy developments; and relied on monitoring and evaluation for ongoing learning and improvement. Shakarishvili and Davey (2005) emphasise the successful systems were flexible in adjusting to their social, economic, demographic and political environments.

Borisova and Gerry (2010) identify clusters of CEE/CIS countries by timing and consistency of reform. The cluster analysis is based on multiple variables of the HCS institutional setup in the areas of financing, organisation, primary care, incentives, patient orientation and the role of professional organisations. The authors consider two stages of transition: early reforms (the first seven years) and further reforms (years 8-15). With respect to early reforms, they identify (1.1) fast reformers (Czech Republic, Estonia, Hungary, Latvia, Slovakia), (1.2) inconsistent reformers (Albania, Kazakhstan, Kyrgyzstan, Lithuania, Russia), (1.3) slow reformers (Belarus, Bulgaria, Poland, Moldova, Romania), (1.4) non-reformers (Armenia, Azerbaijan, Tajikistan,

Turkmenistan, Ukraine, Uzbekistan), and (1.5) an outlier (Georgia). Considering the stage of further reforms, the systems are: (2.1) liberalised (Czech Republic and Slovakia), (2.2) reformed (Bulgaria, Estonia, Hungary, Latvia, Poland, Romania), (2.3) diverse and inconsistent (Albania, Kyrgyzstan, Lithuania, Moldova, Kazakhstan, Russia), (2.4) non-reformers (Azerbaijan, Belarus, Tajikistan, Turkmenistan, Ukraine, Uzbekistan), and (2.5) outliers (Armenia, Georgia).

2.7. Deficiencies of the emergent systems

2.7.1. Shared challenges of economic performance

Transformation of CEE/CIS health care had positive impacts on quality of health care (Rechel & McKee 2009). Shakarishvili and Davey (2005) agree the quality improvements deserve recognition, but also note that reforms fell short in providing corresponding gains in HCS efficiency. In fact, a number of data envelopment and stochastic frontier analyses suggest that that overall economic efficiency of the CEE/CIS systems has been subpar considering their level of development (WHO 2000, Evans et al. 2001). Verhoeven et al. (2007) specify that, in comparison to OECD, CEE countries enjoy relatively high technical efficiency in converting expenditures into intermediate outputs such as the numbers of immunisations, consultations, and inpatient episodes. However, they display poor allocative efficiency in translating those into health outcomes reflected by measures of health-adjusted life expectancy, standardised death rates, and infant and maternal mortality rates. This structural system inefficiency will become more pressing as countries increase their health expenditures. Without major efficiency reforms, it may be impossible to maintain a trajectory of growth in health outcomes.

Moreover, systemic underperformance is also apparent in the aspects of equity and responsiveness. So far, the outcome trends have been worrying. In the region at large, the level of equity and financial protection has lessened with growing OOP payments and payroll contributions, which are generally less progressive than taxation. Cost of illness has become a risk factor for poverty, as many families participate in no prepaid scheme and face catastrophic OOP expenditures in case of hospitalisation. Correspondingly, access barriers have increased, particularly for the poor (Preker et al. 2002). These trends are common to both unreformed and SHI countries. In the latter, adverse equity outcomes were usually a side-product of mishandling the composition of the health funding mix and reducing the scope of statutory entitlement.

Sources of health care deficiencies are twofold. On one hand, the countries have struggled to neutralise the predominantly burdensome socialist inheritance. Some deficiencies had existed before 1989 and their persistence is a sign of the inability to shake off the historical residue. On the other hand, there are also new and upcoming problems that require anticipation and flexibility (thus corresponding to the concept of dynamic efficiency), among them new medical technologies, capital and infrastructure demands and "brain drain" (Waters et al. 2008). The

technological, fiscal and demographic pressures are likely to affect CEE/CIS no less than industrialised countries, effecting in the "welfare trilemma" of coverage, cost-containment and choice (The Economist 2011). The necessary trade-offs will require painful and, hopefully, explicit discussions over priorities and acceptable forms of rationing. Likely outcomes of shunning explicitness in managing the trilemma are observable in CEE/CIS, where rationing through waiting times and gatekeeping is subject to extensive informal reallocation, outside of government control.

Regardless of its efficiency, a HCS will always be constrained by the revenue base. Social health insurance may be effective in generating HCS funds in affluent countries, but in poorer countries it does not guarantee higher and more stable revenues than taxation, because it suffers from the same limitations underlying the public sector. For example, shifting revenue collection from the tax authority to quasi-state agencies creates institutional issues, stakeholder tensions and creates opportunities for corruption and government failure (Preker et al. 2002). For the same reasons, SHI may incentivise but does not guarantee cost containment, economic efficiency or better health outcomes.

Considering the above trends, pressures and liabilities with available financing sources, reform strategies ought to consider both additional sources of revenue and rationing mechanisms, as economic growth alone will be insufficient to cater for the increased health care demands. Solutions for consideration include stricter approaches to defining benefit packages, explicit priority setting, emphasising cost-effectiveness of interventions, and co-payments to curb moral hazard on the demand side. Expanding voluntary health insurance is another possibility. Its present immateriality is argued to hinder efficiency advancements and constrain financial resources available in the system. Moreover, the lack of prepaid alternatives may sustain resistance against rationalisation reforms of the statutory scheme, due to affordability concerns (Leven 2005).

2.7.2. Health system performance in a sub-regional layout

The challenges facing health systems are to a large extent universal across CEE/CIS. Most systems entered transition with similar inheritance of high levels of risk protection and equity, as well as the same mechanisms for maintaining thereof. After a decade, considerable system heterogeneity emerged, resulting in dramatic differences in the severity of most pressing problems. For example, the levels of financial protection range from good in CEE to very weak in Central Asia. In terms of the HCS capacity to meet its objectives of access, protection and equity, three clusters of countries are distinguished in the region: Central and Eastern Europe, higher income CIS, and lower income CIS largely overlapping with Central Asia (Ensor 1993, Preker et al. 2002, Kutzin & Jakab 2010). The country groupings follow previously discussed characterisations of the extent of macroeconomic recession, absolute levels of per capita

income, and the overall complexity and direction of health reform. In terms of health care financing, the three clusters loosely correspond to the predominance of long-term contracts (SHI), hierarchy (unreformed tax-based systems), and spot markets (OOP payments).

Central and Eastern Europe

The region's upper income bracket, Central and Eastern Europe, experienced a mild economic decline followed by a period of fast growth. CEE systems evolved towards the Bismarck model of financing and only kept limited functions of tax funding. They also maintained high levels of financial protection, not necessarily reflected in general public satisfaction with the sector reform. Developments in countries such as the Czech Republic, Estonia, Poland, Hungary, Slovakia, have been driven by the closeness of Western Europe, democratic political processes, and the gravity of EU legislation over the matters of privacy policies and cross-border care (Mossialos et al. 2010). The influence of European policy triggered adjustments of national systems and altered the post-communist transition trajectory, through the early 1990s aspirations, late 1990s and early 2000s negotiations, as well as treaties, regulations and directives after 2004.

The European context is also useful for assessing health system performance, as CEE countries have been closing the gap dividing them from Western Europe. Both the OECD (2004) evaluation of high performing systems and subsequent editions of the Euro Health Consumer Index (Eisen & Björnberg 2010, Björnberg 2012) indicate the relative performance of Eastern European HCSs. In the latter ranking, focusing on responsiveness and accessibility, the Czech Republic, Estonia and Slovakia outperform such Southern European countries as Italy, Greece, Spain and Portugal. The Czech Republic and Slovakia are praised for "doing particularly well" considering their purchasing power-adjusted per capita health expenditures at around half the levels of Western Europe. Coincidentally, those two countries were the only ones to introduce SHI systems based on multiple competing insurers. In other CEE countries, transition experiences show that MOH-subordinate or semi-autonomous bureaucratic agencies led to considerable government failure, which seems to be reflected in their performance. CEE is also advancing to the stage of higher patient empowerment, which has been signalled by improvements in patient information, privacy protection, e-Health, etc.

The variety of Former Soviet Republics (high income CIS)

The second cluster of countries, of intermediate per capita income, differs from the previous group both in terms of the economic system (Kornai 2000c) as well as health care and outcomes (Kutzin 2010a). This bunch underwent a deeper recession and inconsistent political and economic transition. The aftermath of 1989 was more severe than in CEE, with growing poverty and inequalities, marginalised groups becoming more vulnerable, migration, erosion of social

networks, and intensification in risk factors such as alcoholism, drug consumption, sex trade, violence and conflict. Consequently, health care systems of post-Soviet republics face challenges different from those of Central and Eastern Europe.

The challenges were met by only limited and irresolute health care reforms. The health sector transformation typically featured an incomplete transition to SHI (which often remained secondary to tax), fragmented systems for health financing and fund pooling, deterioration in the levels of protection and equity despite sustained broad nominal entitlement, and increases in formal and informal payments. Social insurance schemes in the region failed to achieve universal coverage, excluding from the public safety net mainly the vulnerable groups. Formalising informal payments has achieved mixed effects, from unsuccessful to promising, with evidence from Russia showing that formal and informal payments may be substitutes.

In terms of provision, many medical practices perpetuate from the previous system and managerial autonomy was scarcely extended, despite some decentralisation efforts. Shifting primary care from the polyclinic model towards general practice did not strengthen prevention or reduce the reliance on hospitalisations for treatment. HCSs capacity to respond to chronic diseases is constrained by the lack of investment in skills and facilities, overlooking care continuity and integrated approaches, shortages of drugs and equipment, and low commitment to quality. The situation is particularly difficult in rural areas. Public health systems failed to adapt to the new reality and continue with their narrowly-defined task of controlling communicable diseases. Impacts of privatisation and liberalisation were uneven and did not rise to create an alternative to the public provision. In the pharmaceuticals sector, most drugs are now imported through private networks, at a substantial cost. The opportunity to use generic drugs is low due the absence of favourable regulation, limited local capacity to produce generic drugs and general negative attitudes towards substitution of brand-names with generics. Professional organisations gained more voice and relevance, however, health policy-making remained highly politicised (Balabanova & Coker 2008). The importance of parallel health systems, run independently by state companies or ministries and dedicated for workers of the military, transport and civil servants, has nonetheless been fading.

Because of the size and diversity of the region, as well as the unevenness of the transition process, differences in access and utilisation within CIS are substantial. In this variety, countries of the second cluster, such as Albania, Belarus, Kazakhstan, Russia, and Ukraine, maintained fair accessibility of health care for the general public. This is notwithstanding the commonplace reliance on informal payments and personal connections, substantial within-country inequalities and the potential unsustainability of health care systems (Balabanova et al. 2004). A study of eight countries of Eastern Europe and Central Asia by Balabanova et al. (2012) shows that improvements in health care accessibility have taken place in the recent years, lowering within-

country inequalities and strengthening financial protection. The scholars also observe institutional progress in the form of developing insurance systems, growing public awareness of the HCS mechanisms, and some positive side-effects of economic growth. Moreover, geographical accessibility is not an issue. However, large scale OOP expenditures persist, and affordability of health services is sub-par. Once free at point of service, medical treatment has universally become subject to formal or informal fees, despite efforts to strengthen public systems and financial protection of the populations. This is not least because citizens pay for health care provided in public facilities as if it were provided in private practice, due to the capture of public property. Anticipating these obstacles, people commonly choose not to seek medical care, opting instead for alternative practices: self-treatment with herbs, alcohol or traditional medicine. In consequence of the above challenges, accessibility patterns have changed in the last decade. On one hand, there has been a decrease in variation between socio-economic groups and an overall decline in the access problem. On the other, the improvements have been less significant for the lower social strata, therefore the groups of low income, poor health, or otherwise vulnerable, became relatively more disadvantaged.

Caucasus and Central Asia

The third cluster comprises low income countries, primarily but not exclusively of Caucasus and Central Asia, such as Armenia, Azerbaijan, Moldova, Georgia, and Uzbekistan. These countries, similarly to the previous group, suffered negative consequences of the collapse of the Soviet Union: increasing poverty, widening inequalities, erosion of social networks and values, social disruption, and intensification of adverse risk. However, the shocks were particularly pronounced: in Central Asian countries in the first half of 1990s GDP fell by 50 to 80% and poverty levels rose manifold, e.g. in Kazakhstan from 5% in 1988 to 50% in 1994 (Borowitz & Atun 2006). In some cases this was accompanied by civil or military conflict, e.g. dictatorship and international isolation of Turkmenistan and the 1992-94 civil war in Tajikistan. Balabanova and Coker (2008) explain that the extent of disruption varied between countries for complex reasons, including both extrinsic circumstances as well as culture, history, varying population homogeneity, national product, political processes, and availability of natural resources (mainly natural gas and petroleum). Consequently, the socio-economic situation of Caucasus and Central Asia differed dramatically not only from CEE, but also from Russian republics, to the extent that some countries qualified for international aid of up to 10% of TEH in 2007 Kyrgyzstan and Tajikistan (Rechel et al. 2011).

The health sector was adversely affected by severe macroeconomic decline and social disruption, which widened the gap between the capacity and needs, as well as disallowing the necessary health care and public health reforms. These countries have introduced limited changes of governance, financing and health care delivery, and moved towards strengthening

primary care (Kazakhstan, Kyrgyzstan), but generally did not overcome fragmentation, overreliance on hospitals, inequalities in utilisation and health care system inefficiency (Rechel et al. 2011). This resulted is the group's distinguishing characteristic: OOP payments being the primary source of health care financing at the level of 50-80 per cent of TEH, which Borowitz and Atun (2006) interpret as a collapse of public HCSs and a de facto privatisation of health financing.

Bonilla-Chacin at al. (2005) identify four cases within this cluster: (1) very low spending (TEH < 2% GDP) and no reform, Azerbaijan and Tajikistan, which rely too much on hospital care despite the resource constraints and need to shift the focus towards primary care; (2) very low spending and some reform, Armenia and Georgia, which suffer from low public revenue, high OOP payments and a weak primary health care system leading to problems in accessibility, efficiency and equity; (3) higher spending (THE > 2% GDP) and no reform, Uzbekistan, which has a good opportunity to catch up with the better-off countries if it proceeds with adequate reform; and (4) higher spending and some reform, Kyrgyzstan and Moldova, which are the group leaders and should continue to reform their systems with caution. This classification proves that there is heterogeneity even in the narrowly defined group of the seven poorest former Soviet republics.

The scarcity of resources and inadequate policy responses correspond to increasing barriers to access, especially given immaterial levels of voluntary prepaid schemes, declining utilisation, and poor levels of equity and financial protection. Problems with infrastructure upkeep led to limitations in the supply of water and sanitation. Affordability issues are most severe in Georgia that has the most limited public benefit entitlement, and in Azerbaijan, where the public share in total health expenditure is the lowest (Balabanova et al. 2012). The health care that remained is provided inefficiently and has poor quality. The palpable consequences have been rising poverty caused by cost of illness and declining health outcomes, the latter an effect of both increased incidence of communicable disease and growing burden of chronic disease (Bonilla-Chacin at al. 2005).

Differences between reform paths in similar post-Soviet countries of Central Asia, e.g. Kazakhstan and Kyrgyzstan, reveal essential ingredients of successful reform. Borowitz and Atun (2006) emphasise leadership, planning and a vision of implementation, coordination of reform areas, capacity-building, and allowing time for institutions to mature especially if they perform functions unseen in the previous regime (e.g. health insurance regulation done by people who only are familiar with a management system of top-down command and control). Rechel et al. (2011) highlight good governance and political continuity, coordination of donor activities, carefully contextualising new economic mechanisms, incentivising efficient modes of provision, lessening regional inequalities, using pilot projects for successful and step-wise

implementation, as well as building support and understanding of the public and health professionals. Bonilla-Chacin at al. (2005) recommend to firstly enhance supply-side efficiency through outpatient and primary care focus, evidence-based care, empowerment and training of health workers, financing reforms and fostering managerial capacity; secondly, to strengthen budgeting and regulation through monitoring and evaluation as well as standards of quality, information and accounting; and thirdly, to tackle the problems of access and affordability by considering prepayment mechanisms outside the public sphere and creating protection programs for the poor.

Although Caucasus and Central Asia have the lowest health outcomes among CEE/CIS countries, neighbouring Pakistan and Afghanistan perform poorer still. Keeping this in mind, the traditions of the Semashko system can be seen as an asset rather than a burden. A coherent system for delivering key basic health care and public health services is valuable fundament that, despite significant challenges, can be transformed by adding new solutions that will respond to modern needs.

2.7.3. Corruption in health care

The presence and forms of corruption

A particular challenge faced by CEE/CIS countries in reforming their health systems lies in entrenched corruption. This is one of the persistent forms of the socialist burden, underlying numerous other issues and undermining health care reform. Corruption is a broad term, applied to a wide variety of circumstances, and therefore usually referred to in a specific context (cf. Bardhan 1997). Even narrowed down to health care, corruption may assume a number of different areas and forms. Vian (2008) identifies the following: (1) construction of facilities – bribes, kickbacks, insufficient accountability; (2) purchase of medical goods – bribes, kickbacks, collusion during procurement, a lack of incentives for optimal choice, unethical promotion, insufficient accountability; (3) use of medical goods – theft, resale, sale of goods that should be provided free of charge; (4) regulation – bribes to gain approval, certification or speed up inspection, bribes to influence decisions, biased application of rules and regulations; (5) education – bribes to secure a place in a medical school or training, to obtain passing grades, personal influence and nepotism; (6) research – pseudo-trials for marketing purposes, misinformation or inadequate standards; (7) provision of services – use of public facility to serve private patient, unnecessary referrals and induced demand, absenteeism, eliciting informal payments, theft of user fee or diversion of budget funds. Leven (2005) discusses three forms of corruptive action as particularly widespread in Eastern European HCSs: patient payments intended to secure, speed up or improve quality of medical treatment; payments from pharmaceutical and medical equipment industries aimed at obtaining a favourable consideration by physicians or regulators; and the use of public facilities for private practice.

Informal coordination, bordering with or explicitly involving corruption, is by no means exclusive to post-socialist countries. Illegal practices have been documented in the industrialised countries' health care also, e.g. in the US, Pauly (1979) on fee splitting to offer incentives for patient referrals, and Hyman (2001) on social norms and perceptions of health care fraud. In the latter paper, the US illegal activity was estimated to account for 10 per cent of total spending on health care. Informal payments, usually taking less subtle forms, are common in the developing countries of Asia, South America, and have also been reported in some African countries (Lewis 2006). These countries rely on public provision rather than regulation, where an ample space for corruption is created by the combination of the position of power, a lack of accountability, and persistent shortages. However, industrialised countries have the infrastructure and social protection schemes but considerably lower levels of corruption, while developing countries often lack the infrastructure or welfare benefits that could be captured for private gain. The presence of public infrastructure and generous welfare programmes on one hand, and high levels of corruption on the other, is the distinguishing feature of CEE/CIS and an explanation of the unique intensity of the problem in this region.

A number of mechanisms can be conceived through which informal allocation can be argued to improve economic performance. These arguments have attracted the attention of macroeconomists concerned with economic growth and health economists looking primarily at efficiency and equity outcomes. Admittedly, macroeconomic evidence exists to support the claim that the informal sector can boost growth by "oiling the mechanism" of rusty bureaucracy that distorts allocation by sub-optimal rules, regulations and administrative decisions. Corruptive action may at best improve economic outcomes in the short run, while in the long-term it will lead to system underperformance both in terms of efficiency and equity (Akai et al. 2005). The discussion of corruption and its effects is very similar in the case of health care. Liu and Sun (2009) present a formal analysis of patient welfare, taking into consideration the scenarios of banning and tolerating informal payments. The model shows that forbidding informal payments is not necessarily a welfare-enhancing step, nor is allowing for their existence. The overall outcome hinges on patient heterogeneity, among other things. Tanzi (1998) considers a number of situations in which corruption can improve allocative efficiency, however, each of his arguments can be countered as being non-optimal and having in the long run harmful effects on efficiency, equity, accessibility and responsiveness of health care. Econometric studies of links between corruption and health outcomes (e.g. Gupta et al. 2000, Radin 2009) substantiate these claims, suggesting considerable costs of tolerating high levels of illegal or informal activity in the HCS for extended periods of time.

Problems of state capture and regulatory failure were introduced in Chapter 2.6 in the context of reform quality. In the remaining part of this section, the focus is on the problem of informal

payments. Nonetheless, the various manifestations of corruption remain interconnected parts of a broader problem, and in terms of effective policy cannot be addressed partially.

Informal payments

Forms

The practice of informally paying for public services is a residue of the shortage economy, where many goods were unavailable in the official circulation and often obtainable only through grey or black markets. Non-price rationing of goods and services granted substantial discretionary powers on the side of the officials, who often demanded a token of appreciation in exchange for favourable consideration. The system of non-price rationing functioned for over four decades, and finding ways around it became both a necessity and a habit. Despite subsequent reform efforts, the public sector remains largely affected by the presence of the phenomenon, both in terms of clerks' expectations and petitioners' perception of duty. The problem is pronounced in health care, where underfunding, organisational deficiencies, as well as intentional impediments put in place by medical staff, result in low quality, poor responsiveness, and long waiting times.

In health care, informal payments, also referred to as envelope or under-the-table payments, typically concern patients' out-of-pocket expenditures on services provided under the statutory scheme, which are nominally free of charge. (Exceptionally, they may take the in-kind form rather than cash, and may also take place when a medical service is already subject to a formal fee.) Gaál et al. (2006a) differentiate between informal charges, advance payments (in private practice for provision by the same doctor in his employing public organisation), brick payments (an encouraged or compelled purchase of a token to support the provider organisation), tips, in-kind contributions (e.g. in case of a shortage of medical provisions), and gratuities. These forms differ in the scope of illegality, informality, abuse of power, voluntariness, timing, and the extent of public-private sector crossover. For example, Ensor (2004) distinguishes between (1) informal payments that arise from need, such as an actual deficiency that requires the patient to contribute towards costs of care if the treatment is to be provided, (2) misuse of market power, in which a physician's monopolistic power enables him to successfully extract payments in exchange for granting access to medical care (3) additional services, initiated by patients hoping to "jump" the queue, increase the quality of care or gain other privileges. In the wider health sector, an informal payment could secure eligibility for state-funded spas and health resorts, for example.

The extent to which under-the-table payments are expressions of genuine gratitude, as opposed to abuse of position or bribe, has been debated. Gaál and McKee (2005) closely examined contexts and motives, as well as theoretical arguments and empirical evidence regarding the

nature of informal payments in Hungary. They found that the discussion is inconclusive and neither the donation nor fee-for-service hypotheses can be defended beyond doubt. Thompson and Witter (2000) argued that in fact, even for the parties involved in the transaction, it may be impossible to determine whether the payments are solicited, requested, hinted at, bribe attempts or tokens of appreciation. This ambiguous situation involves a mixture of various social norms as well as complex material and immaterial incentives. Consequently, an ethical qualification of such an act is often open to various interpretations.

Public sector corruption is well-entrenched in Eastern Europe, which creates certain expectations and automatisms that influence individuals' actions and choices. However, Bardhan (1997) rejects the explanation of reasons for corruption based on social norms. His argument is that it nears a tautology to claim that "a country has more corruption because its norms are more favourable to corruption". This hypothesis is further dulled by the presence of tangible benefits that accrue to both voluntarily transacting sides. Ledeneva (2009) is cautious of the "system made me do it" attitude that justifies corruption and fosters moral indifference to its implications. Resulting "petty corruption", one that involves minor gains to a few involved individuals, is the most widespread, overlooked and damaging at the aggregate level.

Implications

Envelope payments form a part of the changing health care expenditure patterns and growing reliance on OOP spending, discussed in Chapter 2.5.6. Rechel and McKee (2009) argue that informal payments are highly regressive, damaging health care accessibility and equity of financing and provision, as well as they distort health care provision by inducing the provision of expensive, inadequate services. Informal payments also introduce distortions into the publicly funded system by undermining the achievement of social objectives which non-price rationing is designed to realise. Evidence shows that patient charges, both formal and informal, may lead to forgoing care or incurring debt in order to pay for hospitalisations and physician visits. The equity issue of inability to pay is pronounced in Romania and Ukraine, with 43 and 49 per cent of individuals in need reporting affordability issues. While the two countries feature the highest levels of patient payments, in other CEE/CIS countries the frequency of reported inability to pay is still high at around 30% (Pavlova et al. 2012).

The inequality argument also concerns untaxed incomes of doctors, as some medical specialisations and positions give more opportunities to secure extra profits (Leven 2005). This leads to the sentiment of injustice and dissatisfaction of the health workforce. Moreover, a broader social security perspective reveals the magnitude of macroeconomic implications of corruption, related to but not limited to health care. Examples of this include false statements of sick leave eligibility, early retirement, paid disability and other social safety net benefits. These practices decrease the size of the economically active population and put a strain on the welfare

system, yet in CEE/CSI are a popular measure of securing against unemployment. According to Lewis (2000, 2002) Informal payments damage the health sector, the government and the society by breaking trust and cohesion. They are highly inequitable in being random uncontrolled charges arbitrarily imposed by HCS medical workers on individuals, with the only selection criterion being a need of medical care. Envelope payments also obstruct and undermine the reform process through tying up potential leaders of change in informal networks and illegal private benefits. Finally, the problem of supplier-induced demand may analogously occur in the informal and formal settings.

Szende and Culyer (2006) produce evidence of informal payments in Hungary being highly regressive. They calculate the Kakwani indices, as applied to equity of health financing by Wagstaff and van Doorslaer (1992), and find their values at -0.38 for GP, -0.39 for outpatient, and -0.35 for hospital care. The regressive nature of informal payments stems from the amounts paid and their frequencies being similar across income groups and unrelated to the ability to pay. The payments in Hungary are found to be part of an informal code of practice between public system providers and patients, and rarely contested. Pavlova et al. (2012) apply system dynamic modelling to project macro-level effects of patient charges on health care consumption. Their findings are in line with other qualitative studies, with informal payments adding from 0.1 to 0.5% of GDP to effective health care spending, equivalent to 0.5-6.7% of TEH. Poland is positioned near the lower estimate; the upper boundary value illustrates Romania and Ukraine. Gaál et al. (2006b) estimate that, in 2001, Hungary informal payments amounted 1.5-4.6% of TEH.

While the above values represent fairly immaterial shares of the health system financial flows, informal payments have considerable and adverse individual-level implications. Their key influence is in crippling the equity of the system, both in being highly regressive on the patient side, and unequally distributed among doctors. Despite their relatively small value, informal payments persist by giving both health professionals and patients an expectation and hope of improving their situation. In terms of health policy, this proves a balance difficult to overthrow, because achieving an alternative, formal equilibrium would require resources far exceeding the value of informal payments (Gaál et al. 2006b). On the other hand, the "grassroots" form of corruption is often indicative of underlying system deficiencies, e.g. oppressive administrative or regulatory practices. It may thus be seen as a signal, or outcome, of deeper system corruption, rather than part of it. In this view, participating parties are trying to restore a balance with informal transactions, suggesting a sub-optimal allocation of public resources. Ledeneva (2009) calls for a more profound, contextualised understanding of this problem, and criticises the "corruption paradigm" that emerged in Eastern Europe and materialises in the form of grand but blunt anti-corruption campaigns.

There are numerous reasons why envelope payments have proven so difficult to uproot. Perhaps most importantly, Eastern European countries have not fared a long way from the communist institutional environment conducive to government failure. The conditions of state monopoly, provider discretion, and inadequate accountability have persisted in the health sector. Moreover, there are resource shortages that translate into inadequate volumes of service providers relative to needs, low salaries and otherwise poor working conditions, all of which were also the feature of the Semashko system. These circumstances are coupled with the lack of market-based price-quantity adjustment, which results in non-price rationing. Thus, in many of the today's systems there is a shortage and maladjustment that fuels the existence of a secondary circulation of medical goods and services.

Attempts to constrain or formalise informal payments were met with strong resistance. Under-the-table payments are an outcome of a sophisticated quasi-market process, with asking prices, bidding and haggling, price and quantity/quality equilibria, etc. (Leven 2005). This deeply-rooted unofficial marketplace serves multiple stakeholders' interests; in particular, extra profits compensate for low health workers' salaries. In its less harmful forms, the situation could be argued to bear resemblance to rewarding good service with a "tip", a common practice among US consumers, for example. This interpretation is likely correct when the a priori envelope payment neither constitutes a "bid" leading to another patient's relative disadvantage, nor it is a prerequisite for obtaining care of the customary quality. In the resource-constrained systems of CEE/CIS, however, these conditions are seldom met. Thompson (2000) as well as McMenamin and Timonen (2002) suggest that, despite its prominence, the problem has not been addressed explicitly by decisive government strategies. The hypothesised reasons include political costs involved and the possibility that politicians turn a blind eye to the presence of informal payments in an act of compensating for low salaries in the health sector. Anecdotal evidence has it that in some countries governments account for informal payments in physicians' wage calculations (Lewis 2002). Related reasons for indolence in the elimination of informal payments are poor regulation, weak accountability, and little political commitment due to the health lobby pressures (Rechel & McKee 2009).

In fact, some reforms are argued to have worsened the situation. In Poland, an attempt to reinforce the private sector growth by allowing the use of public facilities for private practice led to blurring the boundary between the public and private sectors. This intensified corruption through enhancing opportunities for doctors to shift costs as well as demand advance payments and impose informal charges. As a result, the proportion of patients making informal payments reached 80%. Another flawed reform introduced conflict of interests into the area of the procurement of pharmaceuticals and medical equipment. Representatives of the industries were

allowed to influence public decision-making regarding the purchase of their own products and acceptance for publication of clinical trials in medical journals (Leven 2005).

Patients contribute towards the perpetuation of envelope payments also, with various motivations behind their actions. Most commonly, they want to by-pass system limitations such as sub-par quality or waiting times by offering a bribe. However, their reasons may also include confusion regarding fees and obligations, or fear of poor quality. The latter stems from the awareness of the possibility of provider-induced illnesses, such as hepatitis B or C. Iatrogenic conditions are a product of insufficient funding, but also of negligence, poor medical conduct, a lack of supervision, and other factors. Given the presence of information asymmetry in medical care, the patient may not be able to observe the extra quality he or she is paying for, however, may still decide to pay in the hope of reducing the health-related risks.

Responses

Kornai (2000a) notes that the incidence and size of gratitude payments is a proxy for the successfulness of reforms and progress made in health care transition. In the light of his comment, the status of informal payments across the region is indicative of certain difficulties.

There are a number of policy responses to corruption in health care, and informal payments in particular, that have been suggested for CEE/CIS governments consideration. The first group involves an increased reliance on markets. This may imply increasing the scope for private sector provision, following the argument that it would constrain public monopoly that enables the abuse of power. Alternatively, elements of markets in public health care may take the form of selling the right to choose doctors. This would provide a middle-ground solution, enabling and formalising the choice of doctor, however, without privatising the system. Both solutions allow for the first-best allocation, however, the choice within the public system avoids a number of problems of private markets, e.g. doctors' strong bargaining power that reduces patients' welfare (Liu & Sun 2009). Strategies based on introducing the choice of doctor alone did not stand the test of preventing corruption, as in many areas there was no alternative, and waiting lists caused patients to opt for a less preferred doctor. Moreover, information asymmetries prevented patients from separating the wheat from the chaff (Leven 2005).

A complementary set of solutions lies in strengthening the legislative framework and effectiveness of the justice systems, with the goals of shifting the informal cash flows into the legal, transparent and taxable sphere. Above-discussed market mechanisms could be employed in support of this goal. Gupta et al. (2000) add that empowering more people over public spending and procurement has accountability-enhancing effects and also mitigates corruption opportunities. Resulting improvements in fairness, quality, outcomes, and stopping the leak of

public resources, may dispose the citizens to pay more for public services, breaking the vicious circle of poor quality and underfunding.

Even though informal payment are often forced, Mokhtari & Ashtari (2011) show that they are significantly affected by the extent of information asymmetry. Increasing patients' awareness regarding the services they are entitled to receive free of charge and informing about prices of services that are subject to fee reduces the likelihood of leaving informal payments. Information strategies are inexpensive, non-intrusive and effective, and therefore are preferred policy solutions. This strategy extends to broader patient empowerment. Currently, physicians have little legal responsibility, patient protection is weak and the implementation of patient rights is flawed.

Penalisation strategies are likely to have some effect, but may cause a drive of workforce towards to the private sector. Introducing formal charges to "crowd out" informal payments has the downside of imposing a financial burden with equity consequences (Ensor 2004). Moreover, the CEE/CIS track record suggests this reform would face strong rejection by voters.

Given the problem's strong cultural roots, the counteraction must be multi-directional, coordinated and persistent over a long time. Strategies likely to succeed involve a major health sector overhaul (Lewis 2002). There are a few necessary elements of a holistic strategy. Firstly, the government has to clarify its position and send out a signal for change by making a strong objective statement. Secondly, some underlying system deficiencies need to be addressed. This includes reducing the overcapacity and overemployment, limiting the input drive and laying out across-the-board efficiency incentives, rationalising the statutory scheme in terms of guaranteed services, cost-sharing and exclusions, in order to make the public promise feasible and reduce informal rationing vehicles. Official fees, even of token size, are likely to constrain informal payments to some extent. Since many patients are already accustomed to co-payments, the problem is deciding on whom and in what size would fall the burden of formal charges. Part of the challenge is in communicating such a reform as credible and beneficial to the majority of voters, to make it politically feasible. Higher salaries and more satisfactory working environments in the public sector are essential, but evidence shows they are not a standalone solution. Thirdly, regulation should enable and encourage competition as well as choice, information and patient rights. This involves the existence of private sector alternatives, benchmarking, monitoring and accountability of providers, and opening performance assessments to the public. Finally, effectively separating the public and private spheres would stop the use public facilities for private provision, an implicit government subsidy for the private sector.

2.7.4. Other selected problem areas

Workforce

Generating additional funds and reducing the public scheme's liabilities may not be sufficient to streamline further progress. One possible limiting factor is health manpower. Afford (2003) describes the post-communist transformation as a "corrosive reform", one that brought increasing job insecurity, persistently low salaries (compensated for by the government turning a blind eye to informal payments), salary and informal gains highly dependent on specialisation and position, long working hours and poor working environment, the need for increased mobility, the substitution of physicians with nurses, normalisation of CEE medical training curricula according to EU norms, evolving competencies demanding adaptation and continuing education without employer support. These deteriorating conditions affect males and females differently, creating or contributing to gender inequalities in the health workforce (Evidence Network 2005). Some of the problems are caused by low proportions of health spending on salaries, the rigid system for medical education contributing to job insecurity and forced emigration, and unsustainable health labour planning. The misadjustment is reflected in the simultaneous existence of unfilled vacancies and migration of new graduates to Western Europe. Oborna et al. (2010) say that in the Czech Republic health professionals' perceptions of health reforms contrast with the general view of their successfulness, leading to dissatisfaction and concern. Thus, there is a hidden cost to improvements in HCS performance, which lie in strain, instability and underpayment.

Eastern European health systems are therefore pressurised by justified expectations of medical professionals on one hand, and a new level of mobility opportunities on the other. Opening of the economy generated additional input pressures by providing an opportunity for health workers to migrate to western countries. The scale of this problem is illustrated by current presence of Eastern European doctors in old EU member states, which in such countries as the UK and Germany account for between 1 and 2 per cent of all active physicians (García-Pérez et al. 2007). This "brain drain", which also existed before 1989, intensified especially after the EU enlargement, and was further amplified by the EU-led harmonisation of education and qualifications (Waters et al. 2008). Yet, also outside of the EU, the opening of economies and relaxation of border restrictions in the region facilitated flows of health professionals from Former Soviet Republics.

The flow of medical personnel is not exclusively towards Western Europe, however, and also involves transfers within Eastern Europe. For example, Czech doctors commonly migrate to Germany and Austria. Their chief motivation is salary levels, with up to fourfold differences between two regions adjacent to the border. This led to some hospitals calling their staffing situation a "crisis". However, the Czech Republic gains advantage from Slovak doctors sharing

the same language and culture, thus being able to seamlessly fill in vacancies. Czech hospitals go to great lengths to encourage job applications, for instance, by offering perquisites such as accommodation. In Czech hospitals in 2004, up to 30% of personnel were Slovak (Mareckova 2004).

Overall, various configurations of "brain-drain" put additional constraints on the systems' capacity to deliver quality medical care. Countries of Central Europe have to some extent been able to make up for the outflows by offering competitive salaries and attracting medical doctors from other CEE/CIS countries.

The pharmaceutical sector

The pharmaceutical sector, previously of centralised manufacturing, procurement and distribution, was one of the most extensively liberalised areas of CEE/CIS health systems. EU negotiations and accession were factors greatly shaping the sector operation in the member states, and these countries benefited from the quality of the standardised EU regulation. Yet, even non-EU countries saw their pharmaceutical sectors deeply affected by privatisation of manufacturing and opening of economies; here, however, the quality of regulation varies and generally remains a problem. Compared to the starting point, much has been achieved in the course of pharmaceutical sector reform. Perceptible effects of transition are improved health outcomes and a rapid increase in medicament prices and expenditures. The latter stems from insufficient efficiency efforts: inconsequential application of health technology assessment (HTA) and little information and incentive for physicians and pharmacists to support cost-effective, cost-conscious choices. Other problems include limited competition of distributor chains that results in excessive mark-ups, a lack of clear rules for price-setting and reimbursement listing, non-transparency and corruption of markets and regulators, as well as taxes and duties imposed on imported drugs that contribute to high prices faced by payers (Mrazek et al. 2004).

From the pharma perspective (John Wiley & Sons 2006), the post-communist transition presented growth opportunities based primarily on the region's epidemiological profile shifting to chronic conditions. Intellectual property protection has been increasingly stable and currently is not a matter of concern. However, regulatory gaps exist, for example, a lack of bioequivalence information in the generics market. Other shortcomings are low transparency in reimbursement listing, instances of preferential treatment of local manufacturers, bureaucratic procedures that fail to reward innovation, as well as increasingly aggressive government efforts to contain the costs through reducing the number of drugs listed and their prices.

Health technology assessment

Health technology assessment is a newcomer in the region, adopted first in CEE as a supporting (non-binding) element for public policy implementation. Poland stands out as the regional leader, having established a MOH-dependent HTA agency that made its first recommendations in 2007. In Hungary, there has been frequent organisational change and shifting of competencies, but various HTA bodies have existed since 2004. In the Czech Republic, a dedicated agency is not yet established and guidelines are issued by an independent health economics society. Gulácsi et al. (2012) emphasise limited transferability of studies based in Western countries to Eastern European systems, which strengthens the case for local research in this area. However, the capacity to carry out HTA studies is limited in the region, mainly due to low numbers of trained specialists, insufficient know-how, and public budgets allocated for this purpose being considerably lower than in industrialised countries. Recognising the constraints of the Eastern European context, initiatives have been undertaken to establish guidelines and standards of economic evaluation tailored to the regional needs (Inotai et al. 2012). The awareness of the role of HTA in public policy-making is gaining momentum in the region, with Bulgaria, Romania and Slovakia operating preliminary systems that are not yet comprehensive or transparent. Generally, there is little but increasing reliance on HTA in implementing new technologies, interventions, and pharmaceuticals, as well as setting broader priorities for the public system.

Evidence-based policy-making

Limited HTA applications are a part of broader problems in generation and utilisation of data and evidence. Given that evidence is an input to policy-making, the lack of research activity may constrain the benefits attainable through policies. The limited availability of data suitable to support policy-making has been indicated as an advantage of the US over the EU (Suhrcke et al. 2005). The situation of Eastern Europe with respect to the EU is analogous. The case for evidence-based policy-making has become stronger with the shift towards non-communicable diseases that require holistic policy responses. Comprehensive policies ought to consider, other than narrowly defined medical care, lifestyle and social determinants of chronic conditions as well as the role of education and information in empowering individuals towards managing their health capital. There are sound economic grounds for investing in health, however, research activity is needed to assess costs and benefits and enable the best allocation across the alternative uses of health care and public health budgets.

Similarly, Smith (2002) explains that monitoring and performance measurement are necessary and powerful tools for the continuous improvement of health systems. Their uses include informing decision-making at the policy and point of service levels, supporting patient choice, and designing incentives to promote various policy goals. For example, Kutzin and Jakab

(2010) suggest improved information systems could be used to strengthen the understanding of health financing functions, e.g. the consequences of dramatic increases in private OOP expenditures. However, effective use of the strategy of continuous improvement requires reliable data and systems, availability and compatibility, incentives and procedures for staff to scrutinise and apply the data, as well as a culture of peer comparison and quality improvement. Payers and providers in CEE/CIS are not yet at this stage of development, and in particular do not meet the prerequisites of infrastructure, data compatibility and reliability as well as the culture of making effective use of evidence for the advancement of the system.

Information deficiencies further translate into identification and prioritisation of problem areas. McKee et al. (2000) look into the lack of responsiveness of CEE/CIS governments to the problem of injury and injury-caused mortality. Compared to the EU, death rates were 60% higher in CEE and three times higher in CIS countries. Investigating the causes, McKee et al. identify a number of issues rooted in health policy-making: (1) low problem visibility, (2) the lack of data and evidence that would direct government action, (3) inadequate capacity of organisations responsible for public health in identifying threats and responding with strategies, (4) uncertainty about the ownership of the problem, stemming from the system fragmentation and passive attitudes, (5) weak or non-existent non-governmental organisations that could escalate the problem, and (6) international actors focusing on milestone health care system reforms rather than practical solutions to specific problems.

Public health

Knight et al. (2003) as well as Duran and Kutzin (2010) shed more light on the situation of public health in CEE/CIS. Although the actual organisation varies considerably between countries, it is considered a national (federal) prerogative and structured in separation from the health care system. Nonetheless, financing, provision and stewardship of public health programmes is fragmented between ministries, agencies, departments, and institutes at national, sub-national and international levels. Roles and responsibilities are not clearly defined and the organisations tend to compete rather than cooperate, trying to protect their areas of competency and secure funding. Deficiencies range from defining and understanding the problems, designing responses at the conceptual and implementation levels, engaging stakeholders, and the lack of monitoring and assessment. For example, the inclusion of environmental health and health promotion in public health agendas was highly discretionary. Moreover, until the early 2000s, health inequalities were not generally considered a responsibility of the public health authority, which contrasted the EU practices. Public health officers from CEE countries manifested the need for establishing a core set of disciplines at the EU level, which would help synchronise and organise public health according to universal priorities and best standards.

Long-term care

Long-term care has also been largely neglected in policy-making and research. The discussion of long-term and aged care in the context of welfare and social policy is new to CEE/CIS, where the traditional model of home-based, informal care remains strong. Existing systems are fragmented, underdeveloped and orientated at social assistance. These facts explain the scarcity of data and evidence. Private for-profit and not-for-profit sector initiatives have so far been rare and insufficient to make up for the public system deficiencies, partly because of affordability issues and little public sector commitment to fostering private sector initiatives. Meanwhile, cultural and socio-economic changes, increased labour mobility, population ageing, as well as the growing fiscal risks related to intergenerational dependency, put the existing systems to a test. Given the welfare privileges inherited from the previous systems their fiscal burden, governments of the region are unwilling to take on another commitment and play a game of deferment, for the time being relying on informal carers. Currently, the statutory responsibilities are fragmented and often unclear between the health and social sectors. The emerging reform agenda encompasses decentralisation and pluralisation, clarification of responsibilities in financing and provision, setting clear-cut boundaries between health and social care, strengthening community care, and providing alternative housing arrangements, with the overall goals of improved access and efficiency (Österle 2010).

Mental health care

Mental health care reform in Eastern Europe faces significant challenges. According to Murray and Lopez (1996), the burden of neuropsychiatric disorders was 17.2 per cent of DALYs, compared to the global average of 10.5 per cent. The region-specific problems inherited from the previous system are similar as in health care and public health: weak community and social structures; limited non-governmental sector development; the long period of isolation of Soviet psychiatry from evidence-based western medicine; under-financing and under-staffing of mental health; weak primary care resulting in poor detection and late treatment; the professional culture and structure oriented towards institutional care and clinical regimes; a custodian rather than a therapeutic approach to care; and profession- rather than patient-led care (Jenkins et al. 2001). The main obstacles to reforms include low social and political awareness of mental health care, a lack of policy support for community care, insufficient funding for professional training and developing community structures. Deinstitutionalisation of mental health services tends to be seen as a cost-saving exercise rather than releasing funds for more cost-effective community alternatives. In poorer countries of the regions, the problems extend to inadequate availability of pharmaceuticals, a lack of standards for patient management, and obsolete standards of professional education that overlook the social dimension. Effectiveness of care suffers from gaps in coordination and continuity between social, mental and health care, as well as the non-

governmental sector. Processes for monitoring and assessment of needs and outcomes are largely missing. Distrust towards community and user involvement is a part of the broader problem of damaged civil society and deficient social capital.

2.8. Problems of the hospital sector

2.8.1. Global reasons for hospital reform

Looking at Europe at large, the greatest reductions in numbers of hospital beds have taken place in the former Eastern Bloc, and in particular in Central Asia. However, reductions in hospital capacity in the last decade of the 20th century were noticeable across most European countries (McKee 2004). Transforming the way hospitals provide medical care has been a common theme and a high priority on health policy agendas. New models of care, which affect all sorts of services provided in hospitals, include decentralised emergency care, day surgery, paediatric care and obstetrics, improvements in diagnosis, new care pathways, and forming networks for integration of hospital and primary care with the use of state-of-the-art information technology. Cost-savings can also be achieved through preventing unnecessary inpatient admissions and speeding up discharge.

There are universal trends that drive the hospital sector transformation globally. McKee et al. (2002) identify three main groups of pressures for change. The first group, concerning demand for hospital care, comprises demographics (fertility, ageing, migration), patterns of disease (burden of disease, risk factors, iatrogenic infections) and public expectation (awareness of patient rights, lower information asymmetries). Second, supply-side factors include technological progress and clinical knowledge (patient management, increasing emphasis on outpatient care, for instance) as well as challenges of workforce. Third, political and societal, comprise fiscal pressures, internationalisation of health care (patient mobility) and dynamics of the global market for R & D (including consequences of an increasingly competitive science sector for university hospitals). Moreover, there are a number of pressure sources for organisational change (Edwards et al. 2004): (1) Increase in specialisation, greater caseloads to follow, larger teams of trained specialists; (2) Changes in employment laws, working hours, rest times; (3) Increasing efficiency and reducing costs, by eliminating redundancies and duplications, reducing fixed costs and high-costs assets; (4) A shift from "volume determines outcomes" paradigm to multidisciplinarity and coordination of larger groups of specialists for improved outcomes; (5) Ever increasing emphasis on patient safety and quality of care; (6) Accelerating technological progress and the need for its absorption; and (7) Consumerism, patient voice and empowerment, expectations of higher responsiveness.

In this uncertain environment, the concept of the hospital is changing. Hospital assets – infrastructure, staff, equipment, pharmaceuticals, procedures, and the synergies they produce –

are subject to a paradigm shift from purely clinical understanding of care towards the point of tangency between health care and social care, with an increasingly strong case for integrated care (Glasby 2012). Healy and McKee (2002b) provide an overview of hospital functions that go far beyond providing inpatient care (Table 2.9). The turbulent environment also means that hospital reforms may be either intentional or forced. On one hand, they may arise from intentions of quality improvements (e.g. hardening accreditation to eliminate poorly equipped hospitals in Estonia) or introducing new model solutions and techniques to streamline or replace inpatient care with alternative modes. On the other, reforms can be a response to a change in health needs (e.g. converting beds or facilities from acute to long-term) or forced by economic downturn.

Table 2.9: Functions of an acute care hospital

Patient care	Teaching	Research	Health system support	Employment	Societal
Inpatient, outpatient and day patient	Vocational	Basic	Source of referrals	Health professionals	State legitimacy
Emergency and elective	Undergraduate	Clinical	Professional leadership	Other workers	Political symbol
Rehabilitation	Postgraduate	Health services	Base for outreach activities	Suppliers	Provider of social care
	Continuing education	Educational	Management of primary care	Transport services	Base for medical power
					Civic pride

Source: Healy & McKee, 2002b.

2.8.2. Historical roots of CEE/CIS hospital issues

The broad problems of the health sector are largely associated with the philosophy and organisation of the hospital sector. In the case of CEE/CIS, given its dominant status and the generation of majority of costs, this implies a number of difficulties.

Inpatient services in the Semashko model consumed 60-75 per cent of TEH. Until the 1960s, the trends in HCS and medicine were similar in the Eastern Bloc and western countries. However, while the western world gradually restrained the hospital sector growth in 1960-70s, the Soviet Bloc did not. Hospitals were rewarded for increasing their inputs, which led to the creation of establishments with thousands of beds as well as single-specialty hospitals. Some health establishments qualifying as hospitals in the Soviet Union did not have electricity or running water; while these were extreme cases, run-down facilities were common across the region due to towering costs of upkeep. Staffing levels were very high, but the nurse-to-doctor ratio was low, and physicians over-specialised as medical education promoted narrow areas of expertise. Technology was poorly distributed, particularly in rural areas, and available equipment was often idle. Many hospitals were not equipped for performing diagnoses, which led to the

establishment of centralised diagnostic facilities. With catchment areas often overlapping, the system was fragmented and uncoordinated.

It was a common practice to refer patients to higher levels of care rather than to treat. Primary care was often skipped altogether, with patients self-referring to hospitals, through emergency care, personal networking, or under-the-table payments. An estimated 20-25 per cent of all patients were referred to inpatient care. The administration was fragmented with many owners and independent sub-networks of facilities, leading to duplication in city areas. The duplication stemmed from the fact that hospitals were supervised by different levels of self-government or operated as parallel systems independent from the MOH, e.g. owned by other ministries. The total value of medical assets scattered between those parallel systems would be comparable to that at the disposal of the MOH. Alternatives to inpatient care, such as day surgery, nursing homes, and rehabilitation facilities, were scarce or non-existent. This greatly contributed to excessive lengths of hospital episodes. Clinical practice was often out of date, and arbitrarily set by the MOH bureaucracy. Physicians routinely oversupplied care (inpatient days, test procedures) in facing administrative consequences for negligence but no incentives for efficient use of resources. Following the above patterns, information was also fragmented. There were few systems and little capacity to use the available information for the purposes of planning or policy-making. The uninformed, rigid system of planning and budgeting left no mechanism for correcting the growing system inefficiencies (Ho & Ali-Zade 2001).

2.8.3. A sector unsusceptible to reform

It is apparent from the above paragraphs that the inherited Semashko system faults alone provided enough reasons for a general reconstruction of the hospital sector. This was coupled with the changing role of the hospital, propelled by re-shaping global patterns of health needs, fiscal pressures, patient expectations, workforce mobility, and so forth. The overall direction has been towards greater hospital flexibility (Edwards et al. 2004).

Yet, reforming the hospital sector proved a formidable task. McKee and Healy (2000) explain that hospitals represent large sunk costs, are immovable and of limited adaptability, built for many decades, often fit for medical practices, and disease patterns and population needs from past eras. Hospitals suffer from design limitations when confronted with changing technology, from major capacity misadjustments to such minor problems as insufficient sockets to power up the ubiquitous electronic devices. The sector inertia also stems from the power exercised by high profile members of the medical community, who protect their positions from reductions, restructuring and change in practices. Defensive strategies of the medical professions are facilitated by uncertainties surrounding health (care) production, information asymmetries, and technical and technological complexities of hospital care. These obstructions are as relevant to CEE/CIS as to any other country or region.

Two added difficulties of the post-communist region were the paradigm of providing most of health care in hospitals, which produced an ample class of bureaucrats and medical professions defending their embedded interests. Moreover, the transformation was taking place in adverse circumstances of economic downturn and decreasing health budgets, social disturbance, re-structuring basic institutions, and in some even war or conflict (Healy & McKee 2002a).

2.8.4. Key problems in hospital transition

Nonetheless, reforms attempts have been made in CEE/CIS, varying in both scope and quality, yielding refinements but also revealing further problems. Ho and Ali-Zade (2001) conclude that transition paths were distinct, but certain patterns can be identified. Previously discussed health sector developments also have had significance in the context of hospital sector: emerging payroll-based SHI schemes, new provider payment mechanisms, spreading informal payments in response to inadequate public financing, state capture and conflict of interest in using public facilities for private practice. In many cases, reforms were forced by a deep macroeconomic hardship rather than effecting from purposefully devised sector strategies.

Given the design of the Semashko system, reduction, rationalisation, modernisation, decentralisation and incentivisation were directions promising efficiency gains. These objectives were attempted, with mixed success. Cutting back excess capacity and overstaffing unfolded slowly. This was in part responsible for deteriorating infrastructure, and thus quality of care. Primary care has been emphasised through reductions in hospital referrals, re-introducing general practice and family medicine, elements of fundholding and payment incentives, as well as including the GP training in medical schools' curricula. Privatisation has been limited to an emergence of a few private hospitals. More prominent was decentralisation of ownership to sub-national governments coupled with granting different extents of unit autonomy. The benefits of this were curtailed by low managerial capacity of the empowered agents, which was gradually alleviated by training, development, quality assurance, best practices and benchmarking. In many countries, information systems became a choke point for other advancements, given their slow implementation and little emphasis on evaluation and performance. Modern technologies were gradually acquired, with priority given to imaging instruments. However, a lack of coordination and planning led to situations where the saturation of a particular technology exceeded the levels of industrialised countries, and to reported cases of the equipment being redundant or its operation and maintenance unaffordable. Application of present-day medical practices was constrained, especially in poorer countries of the region, by declining quality of health workers' education and increasingly obsolete clinical guidelines. The importance of this is in the traditionally narrow specialisation of Semashko physicians, whereas today's hospitals increasingly rely on generalists able to coordinate complementary modes of care and manage complex pathways.

The simultaneous decommissioning of obsolete facilities and making across-the-board modernisation investments proved a formidable task. It was, however, an essential step in reducing the over-capacity and increasing the quality of the infrastructure, addressing low sector efficiency and high fixed costs. Observations from CEE/CIS suggest that limited success depended on a presence of a downsizing master plan, merging and restructuring networks of health care facilities, as well as on simultaneous reforms of organisation (e.g. provider autonomy) and financing (economic incentives). Given the cost of such restructuring, estimated at between a third and a quarter per cent of GDP per year, a program would require strong political and budgetary commitment (Haazen & Hayer 2010). CEE countries have tapped into the EU structural funds to support this goal. Importantly, both decommissioning and new investment decisions have had implications for recurrent expenditures, both in terms of fixed (heating, electricity) and capital (upkeep) costs as well as the costs of old and new medical services provided. Countries rely on a variety of arrangements for meeting these costs, including local and regional revenue depending on the owning body, government grants, other taxation-based resources or a proportion of SHI resources, public-private partnerships, capital charges, and direct financing. For most countries, using a mix of the above has been a viable option. Problematically, this range of financing sources was not sufficient to prevent debt from recurring in the hospital sector, among other things caused by the lack of financial discipline, or a "soft budget constraint" (Kornai 1996). This problem is discussed in more detail in Chapter 4, in the context of the changing hospital governance.

Healy and McKee (2002a) as well as McKee (2004) point at a number of hospital policy-making shortcomings apparent across the region. Changing the hospitals environment was based on weak or no evidence, both in the design and implementation of policy. This is partly because theories, data and evidence are concentrated around the US and Canadian HCSs, and their applicability outside these countries is limited. More often, however, reforms were ideological and imitative, rather than tailored and objective-oriented. Policies were sometimes drafted with no clear purpose, and no continuation or synchronisation with other sectors or broader system goals. Moreover, planning was emphasised, while implementation was often neglected and taken for granted to be successful. In consideration of transitioning from the bureaucratic to pluralist vision of the sector, Healy and McKee identify the following cardinal errors: (1) simply borrowing solutions from other countries without contextualising; (2) the belief that marketisation will solve issues of debt, poor quality, over-capacity, financial sustainability and meeting population needs without requiring further government effort; (3) not engaging stakeholders in setting clear policy goals and acceptable, feasible implementations; (4) not aligning incentives coming from different financing and other sources; (5) not developing human resources and their capacity to support change at all levels.

2.9. Concluding remarks

Rowland and Telyukov (1991) interpret post-communist health care transition as a paradoxical attempt to bring power closer to the people after abolishing the self-proclaimed people's regime. This chapter illustrated the conditions of CEE/CIS countries and their efforts towards the goals defined in the World Health Report (WHO 2010): achieving universal coverage through fixes in a number of complementary areas: raising sufficient resources for health, removing financial risks and barriers to access, promoting efficiency and eliminating waste, reducing inequalities in coverage; also, setting an agenda for action and facilitating change. Some of the discussed circumstances included the socialist inheritance, the overall institutional transformation, common and distinguishing features of countries of the region, macroeconomic and socio-demographic pressures influencing the health care transformation. In terms of the actual health sector, presented were fundamental mechanisms of the reformed health care systems, problems of the reform process, and resulting system deficiencies, with a particular focus on the hurdles of the hospital sector.

This overview of factors endogenous and exogenous to the health sector was aimed at providing a comprehensive background for the studies in Part II and III of the current thesis. Such a broad review of issues is necessary to explain the complexity and entanglement of the unfolding processes. The associated literature review also gives an opportunity to identify unexplored areas of transition. The purpose of the subsequent chapters is to fill in some of the identified gaps in knowledge.

One picture standing out of this overview is that CEE/CIS is a heterogeneous region, containing countries at different levels of socio-economic development, and HCSs facing various challenges. Understanding this variety of contexts is critical for discussing policy implications or making reform recommendations. On the other hand, for the purposes of analysis, it is important to remember what binds these counties together: a shared inheritance of the communist health care system that featured a nearly uniform structure and a heavy reliance on hospital care.

Another thought inspired by this overview is that economic studies of post-communist health care were primarily focused on health care financing, in particular on the role for social health insurance, voluntary insurance, informal payments, and economic incentives conveyed by contractual provider payment mechanisms. In terms of public health and health policy, research has centred on accessibility and equity of financing, again especially in the context of informal payments. However, those studies have targeted mainly the populations of CIS. Consequently, Parts II and III of this manuscript are responses to these concentrations of research, targeting the less explored topics. More specifically, Chapters 3-5 look into the problems of hospital sector governance, counterbalancing the knowledge and evidence accumulated on the financing side of

health care. It is an established fact that economic incentives and governance arrangements are complementary areas in determining performance of organisations (Harding & Preker 2003). Chapter 6 corresponds to the wealth of evidence on accessibility, affordability and utilisation of health care in former Soviet republics by Balabanova and others (2004, 2008, 2012). The original study presented here provides comparable information on countries of Central and Eastern Europe.

An overview of two decades of HCSs' evolution also creates an opportunity to highlight successful transition paths. It can readily be seen that countries that achieved best performance of their HCSs benefited from opportune external circumstances. These circumstances are, namely, a higher overall level of economic and social development, a greater institutional stability and quality of governance both inside and outside the sector, stable internal and external environments including little macroeconomic disruption and a lack conflict. On the other hand, strategies for specifically transforming the system were essential for achieving satisfactory outcomes. Some key determinants in this regards are an early onset with clear, prioritised goals for the sector development, a careful choice of the preferred health care financing model and its continuous improvements, allowing for a considerable private sector participation, reforming consistently and smoothly without unnecessary back-and-forth moves, reforming in a comprehensive manner with synergies enabled by the timing and scope of parallel changes, and controlling and containing informal payments and corruption.

One purpose of a close examination of the post-communist region heterogeneity is that each individual country's progress should be assessed relative to its situation. A broad overview of exogenous and endogenous factors establishes a level playing field for the comparative discussion of HCSs. Rechel and McKee (2009) argue that the reform context, socioeconomic, cultural and political, varies greatly and has affected governments' capacities for reform and HCSs' trajectories. Kutzin and Jakab (2010) expound three pillars for evaluating transition paths: the fiscal context, the sector prioritisation, and the reform implementation. From the HCS perspective, the first one is largely exogenous. The second is determined by the political agenda. The third concerns actual reforms, capacity for which is constrained by the former two, however. Hence, it is evident that a fair and realistic international comparison has to mind complex underlying determinants, should it lead to valid recommendations.

As this chapter has shown, clusters of countries based on per capita income are good predictors of the comprehensiveness of reforms, as well as of achieved equity, financial protection and health outcomes. Notwithstanding, some poorer CIS countries fared better than expected judging by their financial and institutional capacity, while some better-off countries of CEE fell behind their peers. For example, Kyrgyzstan and Moldova, despite being among the most affected countries in terms of the magnitude of the fiscal shock and susceptibility to social

disruption, introduced ambitious and well-handled reforms followed by respectable advancements in system performance (Kutzin et al. 2010b, Balabanova et al. 2012). In CEE, the Czech Republic, Estonia and Slovakia fared better than their similarly positioned neighbours (Björnberg 2012). Their status of regional best performers is corroborated in Part III of this dissertation, which provides comparative evidence on health care accessibility in seven new EU member states.

Finally, from a broader international perspective, CEE/CIS transition fits into trends in the organisation of developed countries' HCSs. There appears to be (1) a continued divergence in social embeddedness, including values, norms and social relations, (2) a mix of convergence and divergence in the political rhetoric and resulting health policies, in terms of solidarity, equity, efficiency, priorities for public and private sectors, extents of government intervention, etc., and (3) a considerable convergence within technical aspects of HCS organisation, such as financing mechanisms, clinical procedures and the use of pharmaceuticals (Saltman 1997). Most countries of CIS and especially CEE seem to be in accord with these patterns.

PART II:
HOSPITAL GOVERNANCE IN POST-COMMUNIST COUNTRIES

Chapter 3:
Transformation of hospital governance in post-Semashko health systems

3.1. Introduction

Transformation of health care systems in CEE/CIS has been a multi-faceted process. Chapter 2 has overviewed the complexity of this process and presented the varying progress that countries have made in areas that make up post-communist transformation. In consideration of the dimensions along which the countries transitioned away from the original Semashko model, researchers have directed their attention primarily at the milestone reforms of revenue collection, pooling and allocation to health care providers. Those changing financing arrangements have consequently been credited for being a driving force behind sector performance.

This chapter is an attempt to extend our understanding of health care transition in Eastern Europe by shedding light on the transformation of governance and ownership in the hospital sector. A number of processes have added up to this less explored, but potentially meaningful reform: taking steps from state-owned and centrally managed towards various decentralised forms can be viewed as parallel and complementing the changes on the financing side of the system. The purpose of this chapter is to explore, in a comparative way, this process of balancing authority and responsibility over hospital care between the central government and various sub-national levels of government as well as provider organisations. Country-specific information and its interpretations, produced by local and international experts, are reviewed and summarised in order to present of a compendious account of how the countries, and the region at large, evolved in respect to their hospital networks' governance.

The model of transition proposed here assumes that the ownership and governance transformation follows a pattern that goes beyond the simple public-private delineation. At the same time, each stage of the model can be argued to have the potential to significantly affect the

sector operation and hospital performance. Given the hospital sector materiality, this has critical implications for the whole health care system. The relevance of this fact for the CEE/CIS region is tremendous, because a major and universal challenge faced by the post-Semashko health systems has been in de-emphasising the hospital sector and reinforcing primary care. The problem of over-reliance on hospital care goes hand in hand with the negligence of other modes of health care, including primary care, and is reflected in the shares of inpatient spending in overall health expenditures. In the Visegrad group and the Baltics, these values have been reduced and in the last decade typically ranged from 25% to 35%, comparably to most western European countries. However, former Soviet republics maintained considerably higher shares, for example in 2007, Moldova 53%, Belarus 57%, Ukraine 69%, and Azerbaijan 75% (WHO HFA-DB). The Health For All database specifies the above values as current expenditures on acute, chronic and convalescent care provided in the inpatient mode in public and private hospitals, exclusive of investment and capital outlays. By definition, outpatient expenditures such as day care are not included, although the quality of data in this respect varies between countries and may constitute a source of error.

A number of features add up to the novelty of this study. Observing the evolution and relevance of providers' governance and ownership provides an opportunity to extend the existing typologies of the transition systems, making the picture of Eastern European health care more complete and clear. In reconstructing paths of the reforms in question, this chapter sets the stage for the subsequent discussion of economic implications of changing governance in Chapter 4, and a statistical inspection of its impacts on hospital performance, which is carried out in Chapter 5. Altogether, Part II of the thesis indicates a major underexplored aspect of post-communist health care transition, provides a descriptive account of its building blocks, discusses the theoretical grounds on which these components can be interpreted, and statistically verifies their consequences for the functioning of the health sector.

This chapter is organised as follows. First, literature positions that observe the relevance of governance to the overall post-communist transition process are reviewed. Second, a conceptual model is proposed to explain in a stepwise manner the transformation of CEE/CIS hospital governance. Third, each country's profile is briefly presented in a section corresponding to that country's current hospital governance status, following the previously established conceptual model of transformation. Each section is provided with a short generalisation of experiences based on the countries at a given reform stage. Completing the picture of the changing sector governance is an account of the evolving role of the Ministry of Health. The findings are summed up and are generalised, and region-wide conclusions are drawn in the closing sections. The knowledge generated in this chapter feeds theoretical considerations of economic ramifications (Chapter 4) and is subject to an econometric analysis of performance impacts (Chapter 5).

3.2. Background

The literature review performed in the previous chapter suggests that numerous aspects of health care transition in Eastern Europe have been scrutinised and opinionated upon. Among these topics are: the introduction of social health insurance in a number of countries, a shift towards fee-for-service in the 1990s and case-mix payments later towards the 2000s, new elements of competition in the form of competitive tendering, the persistence of corrupt and informal arrangements, trends in health status, as well as privatisation in primary and ambulatory care.

This idea for this study stems from the observation that the subject of changing hospital sector governance has attracted somewhat less attention. This might have occurred for a number of reasons. For one, privatisation of hospitals has not been prominent, compared to primary and ambulatory care. In most countries, public ownership remained dominant in the hospital sector, and any adjustments within the public sphere have taken forms more subtle and gradual than outright privatisation. For research purposes, and especially considering econometric studies, a clear-cut transfer between the public and private spheres is more easily measured and interpreted. In this sense, evolutions of public systems pose a greater conceptual and empirical challenge.

Nonetheless, a number of researchers have indicated the existence and relevance of the changing hospital governance setting. Berman (1998) observes that policy-makers in Poland devoted excessive attention to developing payment mechanisms and overlooked the broader institutional setup that would make the system perform. This can be argued to be the case in most if not all transition countries. The broader prerequisites for a successful transformation include effective bargaining, tendering and competition, aligning incentives of payers and providers (enforcing hard budget constraints, quality considerations), removing political interests from the picture, accounting for social functions reaching beyond health care (e.g. a hospital being the biggest employer in town), and so forth. Ho and Ali-Zade (2001) identify decentralisation of ownership as one of the characterising features of CEE/CIS health care transition. Langenbrunner and Wiley (2002) consider it one of three major areas of change, along with restructuring of financing and new purchasing arrangements. McMenamin and Timonen (2002) look in-depth into this and other aspects of transition, but simplify the problem of governance down to the privatization of outpatient facilities and hospitals, thus failing to report other structural changes. Jakab et al. (2003) emphasise the weight and complexity of the process. They identify two fundamental changes that took place in the hospital environment: an introduction of social health insurance and decentralisation of hospital ownership. Regarding the latter, they observe varying, in time and across countries, extents of hospital autonomy and accountability. These latter aspects are then linked to other reforms in an assessment of

coherence and synergy. Fuenzalida-Puelma et al. (2010) explain that health care provider autonomy is necessary for purchasing reforms to succeed in driving system performance. That is because payment mechanisms, contracting and information systems will not advance health system development unless providers have the capacity to optimally respond to the new conditions. Autonomy of public providers and reliance on the private sector are two possible ways of building the capacity. However, in the case of the public sector, increased provider management autonomy requires time for adjustment before taking effect.

A conceptual framework for understanding the organisation of health financing (Kutzin 2001) positions governance alongside regulation and provision of information that together constitute a health care system function of stewardship. Stewardship, in turn, is one of the HCS pillars, influencing other functions such as revenue collection, pooling of funds, purchasing and provision of services, and entitlement definition. Stewardship in general, and governance in particular, have attracted increasing attention in recent years, especially after the former function was accentuated in a world health report (WHO 2000).

Busse et al. (2002) compare Beveridge, Bismarck and post-Semashko systems in Europe, taking into account the relationship between purchaser and provider, latitude of independent decision-making, financial autonomy and distance to regulator (regulator—hospital split). Looking at CEE/CIS countries after 10 years of transition, they find that the payer and hospitals were often based within the same hierarchy but progressively moving towards SHI-induced split and contractual relations, generally narrow scopes of managerial autonomy (with the exception of Estonia), early stages of financial autonomy and apparent institutional immaturity, as well as small but increasing distance to the regulator.

In their study of the socialist legacy and early reform in CEE/CIS, Shakarishvili and Davey (2005) devote a section to facility ownership, at which they look primarily through the lens of decentralisation. They argue that the quality of governance in all its aspects as a necessary condition of reform sustainability, but in discussing the cases of nine countries find gaps in the structure of incentives, planning and accountability, as well as the space for excessive regional discrepancies. In a comment regarding scientific literature and Eastern Europe as a study area, Shakarishvili and Davey note that due to shared political, social and economic problems in the late 1980s, at the onset of transition CEE/CIS became a target of intense comparative research in various social sciences. Those efforts were directed at producing reform strategies and policy recommendations. However, Shakarishvili and Davey also point out that there has been little research activity concerning outcomes of the transformation, especially putting decentralisation in a comparative, regional context. Maarse (2006) stresses the evolutionary character of ownership transformations and the existence of an institutional continuum that goes beyond the oversimplification of a public-private dichotomy. However, the CEE/CIS transition literature

has rarely proposed a stepwise understanding of ownership decentralisation. Considering the above criticisms of the subject's meta-literature, this present study can be seen as a response to the identified shortcomings.

3.3. Methods and model

3.3.1. Methods and data

This study based on a compilation of information from secondary sources, available in the form of country-focused studies provided by local experts. The sources comprise various manuscripts, primarily publications in the areas of economics, public health, and health policy, which were identified in the way of an online database search. The search was performed with the use of the Australian National University library "supersearch" system that sends the search phrase to multiple major literature databases including Science Direct, Scopus, EconLit and ProQuest, with a notable exclusion of Google Scholar that was searched manually. Search terms included names of individual countries, groups of countries and the entire region, as described in the section "Terms and definitions" of this dissertation, taking into account variations in the spelling of proper names. The search further included the terms "health care", "health system", "reform", "policy" and "hospital", in various combinations and versions of spelling.

The source materials were selected with the objective of providing full and exact information on the reforms in question. In some cases, the sources provided different interpretations of facts, or facts that would not reconcile. In those cases, preference was given to peer reviewed publications, high quality journals, and leading experts. Moreover, greater weight was attached to more specific information, e.g. a reform description that includes dates of events, references to legal acts and the names of stakeholders involved would be considered more reliable than a loose description or interpretation of facts. Some doubts remaining from the literature were clarified by way of personal communication with experts at the European Centre on Health of Societies in Transition, London School of Hygiene and Tropical Medicine, during a visit by the author over the period September-November 2011. Admittedly, the scarcity of information on certain countries rendered it impossible to reconstruct reform events in detail. By the same token, the availability of multiple sources allowed for more comprehensive accounts, often offering additional detailed relevant information. This variation did not undermine the feasibility of the study, however, given its high-level nature and the ability to construct a complete set of 22 basic profiles containing essential comparative information.

The European Observatory on Health Systems and Policies proved to be a particularly helpful supplier of suitable country materials. Specifically, the Health Systems in Transition monograph series is an invaluable source of information for comparative studies, as it conveys expert reviews structured by a template document. The template covers every important function of the

health care system: financing, provision, organisation and governance, physical and human resources, and so forth. Each template section contains instructions for authors, setting standards for clarity and comparability of information. Since subsequent editions build upon previous ones, some information is not repeated. Therefore, not only the latest, but all available profiles are considered for each of the studied countries. Finally, the quality of the health system profiles has been improving markedly since the first publications in the late 1990s. Thus, when inconsistencies within a series arise, newer editions are generally given priority as revised and corrected.

3.3.2. The model of hospital governance transition

The conceptual model of governance transition, proposed by the candidate, is presented in Figure 3.1. The brief description below characterises each transition stage. Further information regarding each stage follows country descriptions (see summaries of Sections 3.4-3.8).

Stage 1 countries only introduced minor changes in their system, without altering the basic mechanisms of the Semashko system operation. The initial operation of the Semashko system is the selection criterion, and therefore common to all the discussed countries. Stage 2 countries discontinued the integrated, centralised system by taking various decentralisation steps. These steps transferred selected decision-making powers to sub-national governments and territorial health authorities, thus shifting the allocation decisions away from the central government and closer to the point of provision. Importantly, the scope for delegation and de-concentration excluded the financial and legal responsibility for the effects of said decisions. At Stage 3, territorial governments maintained the decision-making authority, but also conferred responsibility in the form of facility ownership. The latter has considerable implications for the distribution of risk in the system, as the national pool of hospitals backed by the state budget is broken into territorial networks, with respective governments bearing financial and legal responsibility for their subordinate units. The practice shows that this process also involves increasing autonomisation of units. Stage 4 retains the previous balance between central and territorial governments, however, hospital units cease to operate as public enterprises. Their status of public establishments, being part of the all-embracing State Health Company, is replaced with that of an independent commercial company, or corporation, effectively imposing private sector legal regulations and standards of governance. Typically, in the course of transformation, the respective territorial government maintains the status of the sole or majority owner, with all the responsibilities of the founding body. Stage 5 accommodates for the presence of an outlier – Georgia – the only country that has privatised its hospital sector. Yet, the inclusion of this stage also serves as an indication of further possible developments in other CEE/CIS countries. Specifically, the growing presence of corporatised forms may facilitate

public-private partnerships or intensify privatisation of selected hospitals that currently remain in the public sphere of ownership.

The aim of the framework is to capture the essential steps that make up hospital governance transition in CEE/CIS, in order to better explain health system change and consequences thereof. The model is inductive – conceived by abstracting from individual countries' transition trajectories. While it features a high level of generality and thus leaves substantial system heterogeneity unaccounted for, the framework manages to capture the evolving nature of governance and indicates the existence of intermediate forms between the extremes of centralised public and private ownership. The need to account for the intermediate stages follows the observation that outright privatisation, if advocated by the World Bank and the International Monetary Fund as means for breaking national monopolies, has not been a common strategy for hospital reform. These intermediate forms may have different characteristics in terms of economic incentives, the possibility of which is examined in Chapter 4. The framework concerns not only hospital units, but the hospital sector at large, in particular encompassing the role of territorial governments as founding bodies, influencing hospital operation and managing their networks.

Figure 3.1: The model of hospital governance transition in CEE/CIS

With these goals in mind, the model focuses on the dominant forms and disregards some lesser forms of governance that may exist across the region. For example, nearly all CEE/CIS feature private hospitals, but contrary to privatisation of primary and ambulatory care, this form of ownership has played a minor role in shaping the sector. Similarly, notwithstanding transformations of secondary hospital ownership, in most countries tertiary and quaternary care typically continues to be organised under the MOH in the form of national centres or university hospitals. Likewise, these hospitals, despite their importance, contribute relatively little to overall population health outcomes. For this reason, and as a minor organisational form, they are excluded from the analysis.

The transition steps are incremental in the sense that subsequent stages increase the extent of decentralised powers and local autonomy. Therefore, the relationship between decentralisation of management and devolution of ownership involves a one-way inclusiveness: an ownership transfer conveys the administrative and managerial tasks (Stage 2), on top of which it grants

financial and legal responsibility. Similarly, the corporatised hospital sector implies the managerial tasks (Stage 2) and ownership (Stage 3) have been transferred to sub-national governments, in addition to which the legal status of hospitals has been changed.

With respect to the above, countries are not expected to make the steps one at a time or in a sequential order. In fact, some of the reviewed countries introduced bundled reforms and proceeded directly to more advanced stages, nonetheless bringing more basic features of decentralisation into the system. For example, in Slovakia, a late decentralisation reform devolved facility ownership to sub-national governments (Szalay et al. 2011). Naturally, the reform also conveyed the authority to manage those decentralised facilities, represented by the preceding transition stage. By the same token, the Czech Republic carried out Stages 3 and 4 simultaneously in a move that transferred the ownership of hospitals to sub-national authorities and initiated a conversion of their legal form from public units to joint-stock companies (Háva & Mašková 2011). In an extreme case where the Semashko hospital sector was outright privatised, the transition model would collapse to the usual binary public-private understanding of governance, with Stage 5 representing an accumulated effect of what otherwise is shown to be an incremental change.

For the purpose of presentation, the countries are grouped by their governance status at the time of writing. However, transition paths of more advanced countries typically include the preceding stages. This is reflected in those countries' descriptive accounts.

3.3.3. Limitations and caveats

Many details that distinguish the hospital setting of each country, and influence its performance, are beyond the scope of this model. The quality of doctors' education and the quality of medical facilities are two examples. The complexity of health systems is such that no model is capable of accurately measuring their added value (Pedersen 2002, Richardson et al. 2003), let alone fully accounting for the individual significance of their components. The model proposed in this chapter is not meant to imply that those factors are irrelevant or immaterial, nor that they have not been subject to change in the course of transition.

Decentralisation is sometimes interpreted in the context of financing powers transferred to regional branches, bodies, or governments. Consequently, it is a common practice in studies of fiscal federalism to measure the scope of decentralisation using as a proxy the local share of spending, or locally raised taxes, in the total expenditure on a given activity (Smith 1979). This study, instead, is concerned with how health care resources are allocated (centrally, territorially or at the provider level), irrespective of their origin. While the influence over resource allocation may be largely in line with the extent of fiscal decentralisation, this study intentionally avoids

the replication of discussion of health care financing reforms. Instead, it focuses on the less explored topics of decision autonomy, ownership, and other aspects of governance.

The aim of the descriptions below is to present each country's reform steps, but also to substantiate the proposed model of the sector transition. When the model is applied to individual cases, areas appear where the existing institutional configuration is not entirely clear. This is because various institutional aspects may cross the boundaries of transitions stages, displaying various degrees of continuity in some aspects. This problem may result from organisational inertia, bureaucracy, disparity between legal and factual conditions, resistance to reform, etc. Doubts also arise in the context of nominal versus real change: similarly branded reforms may produce different outcomes depending on the legal environment and the broader culture. In Azerbaijan, for example, ownership of district hospitals was decentralised to local governments, however, local health authorities remained part of the hierarchical system led by the MOH. In this case, the implications of change were not clear-cut; further investigation indicated that the position of the MOH remained strong, and the devolution produced no real change in the way hospitals were managed (Ibrahimov et al. 2010). In terms of timing of events, reform mapping indicates the arrangement that prevailed during any given year. At times, it proved problematic to determine an exact time of reform, or the time when it became effective. For instance, the process of corporatisation of Czech hospitals was initiated in 2003 and lasted until mid-2007 (Háva & Mašková 2011). Some of these problems have their roots in a limited precision with which local experts measured and described the processes. The above hurdles pose certain difficulties in compiling definitive transition profiles for a number of countries. Nevertheless, they are sporadic and do not undermine the model at large, which is strongly based on facts rather than their interpretations.

It is also possible that the transition model is largely applicable to other modes of care. It could be argued, for example, that various hospital governance arrangements affect outpatient as well as inpatient care. In addition, in many instances, changes in administration and ownership of multi-specialist clinics and ambulatory health centres were carried out in parallel to those of hospitals. While the model could be extended to include all forms of specialist health care, the veracity of information provided in this chapter has only been confirmed in the context of secondary and tertiary inpatient care. This is primarily because of the centrality and materiality of the hospital sector in CEE/CIS. Moreover, the study focus follows the practical consideration that the variety of organisational forms and the quality of information available on outpatient and ambulatory specialist care would result in the model being less solid and some of its implications more contestable. Instead, this study makes the conservative assumption that outpatient as well as primary care have been subject to distinct ownership and payment arrangements, as discussed elsewhere (Watson 2004, Nemec & Kolisnichenko 2006, Rechel & McKee 2009).

3.4. Stage 1: Integrated state financing and provision

3.4.1. Albania

In Albania, the system has remained highly centralised and hierarchical, with the MOH focusing on administrative functions rather than policy and planning. Limited decentralisation brought about a delegation of selected administrative tasks to districts, which nonetheless remained accountable to the MOH (Nuri & Tragakes 2002). Particularly in secondary and tertiary care, the MOH retained full control over the system, leaving very narrow autonomy for the managerial staff (Nuri & Healy 1999). Virtually all spheres of decision-making remained with the central authorities: appointing directors, setting hospital bed capacities and physical assets, purchasing of medical inputs, staff composition and salaries, selection of provided services, targeting public health goals, implementing technologies, strategic development and setting user charges. The only area of responsibility for local staff is clinical management (Veillard 2003).

Efforts in restructuring the inpatient capacity took the form of central government-orchestrated reductions and transformations (Nuri 2001). The lack of reform is emphasised by the fact that despite the nominal shift towards the Bismarck model in 1995, through the establishment of the Health Insurance Institute, until the end of 2012 hospitals continued to be financed according to historical budget (Marku 2010). The most recent reform steps indicate that Albania will proceed towards the principles of New Public Management, maintaining the central position of the state while introducing selected features of the private sector environment (Antoun et al. 2011). So far, there is no system for hospital accreditation, and the lack of medical standards and clinical protocols makes it impossible to monitor performance and quality (Marku 2010).

3.4.2. Azerbaijan

Azerbaijan retained the centralised and integrated HCS, and the limited scope for sub-national governments' discretion reflects that of the Semashko system. The MOH appoints senior administrators at all system levels, who are allocated line-item budgets and follow a hierarchical structure of accountability. The state continues to own providers, granting them very little financial and managerial autonomy (Ibrahimov et al. 2010). The fact that hospital capacities continue to rely on historically established norms has hindered adjustments to decreasing bed occupancy rates, which are related to declining rates of infectious diseases and shifting some procedures to the outpatient setting. The centralised, hierarchical organisation does not prevent the system from fragmentation, however, and while the MOH holds the responsibility for all aspects of health care performance, its knowledge and influence over more remote parts of the system are limited. This deepens the problem of unresponsiveness already inherent to the Semashko model (Holley et al. 2004). In sum, the hospital sector continues to be subordinated

to the MOH, even though it is territorial governments who formally own the majority of hospitals.

3.4.3. Belarus

Belarus has never attempted to de-politicise its health care system and operates a virtually unaltered Semashko model. Decentralisation has been constrained within the existing structures and takes the form of delegation of administrative tasks. While regional governments are formally owners of hospitals, and the day-to-day use of resources is done locally, the process is part of an integrated system and managerial decisions are made accordingly to norms and capacities set at the ministerial level, with a strong involvement of the central government. This is also true for all strategic decisions, concerning investment, decommissioning, physical and human resources, the scope of services offered, clinical practices, and so forth (Richardson et al. 2008).

3.4.4. Tajikistan

Tajikistan's health system also represents an evolved version of the Soviet model. The role of sub-national levels of government is more emphasised than in the peer countries, because regional and local authorities are formally in charge of the provision of social services. However, resources are allocated according to close directives issued by the MOH, to which local health authorities are ultimately accountable (Rahminov et al. 2000). There have been few structural changes in the system, with the exception of two waves of reform (1991-94, 2004) that gave territorial governments a limited scope of autonomy in shaping their health networks. Considering the peer HCSs, this was an organisational innovation. Yet, in 2009, the role of the MOH in heading the system was strengthened with the power of appointing regional and district heads of administration without the need to consult the respective regional government, as was previously the case. The reporting structure has remained hierarchical, with hospital managers having little discretion over what and how medical services are provided. Provider organisations are owned by and financed from the state budget, and local authority is constrained by budget lines ascribed in detail by the Ministry of Finance with little involvement of the MOH. Consequently, the Ministry has no direct control over health expenditures other than at national centres (Khodjamurodov & Rechel 2010).

3.4.5. Turkmenistan

In the 1990s, the Turkmen health care system retained all principles of the Soviet model: integration, centralisation, bureaucracy, hierarchy, and state ownership. Local allocation decisions continued to be led by centrally set norms, leaving no space for flexibility, innovation or community involvement. Allowing doctors to rent public facilities for private practice had

little impact on the sector functioning, as did enabling hospital administrators to offer individual employment contracts and transfer funds between line-items, which was abandoned in 1997 (Mamedkuliev et al. 2000). In the 2000s, the oppressive dictatorship of President Saparmurat Niyazov caused a rapid degeneration of the HCS. Doctors Without Borders (2010) report deterioration of the system due to politically-inspired misinformation and manipulation of data, creating false impressions of collaboration with international organisations, denial of problems, and a culture of fear within public structures. Between 2003 and 2006, poor quality of care was exacerbated by such practices as refusal of care and an unwritten ban on certain diagnoses (Lowrey 2009). These observations are supported by Rechel and McKee (2007) who document the practices of the dictatorship: neglecting health care system issues, denial and secrecy, falsification of data, and involvement in drug trafficking. They later report signs of improvement, albeit fragmented, uncoordinated and insufficient (Rechel et al. 2009). Moreover, the country does not cooperate with international institutions. In terms of organisation, the decaying system perpetuates the Semashko features, but many of its basic functions have been damaged.

3.4.6. Ukraine

Ukraine represents a more progressive approach to the Soviet model. In principle, the system continues to operate along the Soviet tradition, with an essentially unaltered organisational structure. On the other hand, since 1997 there has been a shift in decision-making towards sub-national levels of government that spurted innovation in health care provision. This process, referred to as "functional decentralisation", involved passing down the budgeting and management powers while maintaining the empowered authorities formally subordinate to the MOH. Thus, the Ukrainian developments cannot be interpreted as an actual autonomisation of territorial governments, because local health bodies' incentives for rationalisation of resource use remain limited, and tight control exercised by the MOH is said to be a factor inhibiting further system adaptation. In particular, the MOH continues to impose national input norms that prevent rationalisation through reductions in hospital networks and facilities. (Lekhan et al. 2004, Lekhan et al. 2010). Tymkovych (2005) argues that despite some flexibility in health funds allocation, the system remains wasteful and insufficiently incentivised. Thirty per cent of inpatient episodes are considered unjustified and lengths of stay are excessive with the average of 15 days. Considering the above, the HCS can be seen as a centralised and integrated model with a considerable amount of task delegation. An actual decentralisation is on the agenda.

3.4.7. Uzbekistan

In Uzbekistan, limited decentralisation reforms took place within the integrated system. Certain allocation tasks have been delegated to regions that nevertheless remained part of the hierarchical structure and follow strict norms and guidelines set at the ministerial level. Strong

control on the part of the MOH constrained the anticipated adjustment of provision to match local health needs. Reductions in the numbers of public, state-owned hospitals led to privatisation of some units, but the materiality of private provision has been low, and inpatient care remains firmly set in the public system. Granting managerial autonomy to facilities, which encompassed staffing, pricing, and organisation of service delivery, has been restricted to four pilot projects. Heads of the units selected for the programme were appointed by the central authorities. Budget allocation has been decentralised to quasi-independent MOH branches, however, this change is reported to be purely nominal and having no impact on the actual operations. Norms and guidelines, which the system runs by, continue to be closely set at the national level (Illkhamov et al. 2001, Ahmedov et al. 2007).

3.5. Stage 2: Decentralised facility management

3.5.1. Kazakhstan

Compared with other countries of the region, from the mid-1990s Kazakhstani sub-national governments enjoyed a higher degree of autonomy. Although the extent of their powers has been fluctuating, most allocation decisions have been made at the regional level, including hospital management and financing. The latter relates to the fact that the system continues to be funded based on budgets, but their composition is a regional prerogative. While the health sector remains predominantly owned by the state, and the MOH has a say in making regional appointments, territorial health authorities are accountable to their respective regional governments. Regions also appoint heads of units and hold hospitals accountable.

Since 1997, regional committees were given the opportunity to transform public health establishments into autonomous state-owned enterprises. The impact of this legal provision was initially limited to primary care and outpatient facilities such as polyclinics. Regarding inpatient care, the process was hindered by the lack of a clear strategy determining the units that would remain under state control, and whether for-profit status should be permitted. Consequently, nearly all hospitals remained in the state domain, and continued to rely on outdated infrastructure planning in the form of population-based input norms (Kulzhanov & Healy 1999). More recently, the autonomy of hospital units has been increasing due to new case-related payment mechanisms and the gradual transformation of their legal form to state enterprises. The transformation is a strategic decision for the territorial authorities, as these enterprises are able to manage their own assets, decide upon inpatient capacities, and set user charges. This has created more space for innovation and tailoring service provision to local needs, but has also led to varying levels of power and revenue (Katsaga et al. 2012).

Even so, the position of the MOH remains strong, with the competencies of national policy setting, planning, service delivery approval and control. Between 1997 and 2002, the MOH

underwent a number of uncoordinated transformations that interrupted its performance, and the demarcation between regulatory and service delivery authority continues to be unclear in certain aspects. However, in terms of setting the levels of financial resources, ministerial powers are limited. This is because the MOH budget, as well as territorial budgets, are allocated externally by the Ministry of Economy and Budget Planning (Kulzhanov & Rechel 2007, Katsaga et al. 2012).

Overall, the hospital sector structure in Kazakhstan has been dynamic. In the light of western European standards the system remains highly centralised, but compared to other countries of the region the sub-national governments enjoy considerable autonomy. In terms of ownership and governance, since 2007, the regions have accelerated the process of converting their hospitals into autonomous units.

3.5.2. Kyrgyzstan

Similar health care system evolution took place in Kyrgyzstan. The MOH has assumed the role of the system regulator and supervisor; it now exerts relatively little direct power over service provision in facilities other than national centres. Since 1994, regional governments have been empowered with the organisation of primary and secondary health services including hospitals. Local health authorities are appointed by the regional governor, subject to the MOH approval; in turn, local health authorities appoint chief physicians that head hospital provision of medical services (Sargaldakova et al. 2000). Since 2004, there has been a further push towards financial and managerial autonomy of providers, which involved a shift from line-item to consolidated budgets, thus increasing provider flexibility and responsibility. However, effects of this reform have been constrained by legal issues surrounding the project, the lack of provider financial management capacity, and financial unsustainability that could not have been aided by adjustments in structure and staffing alone (Ibraimova et al. 2011). Following a number of reforms in the early 2000s, local health administrations represent a mix of stakeholders, including local and central government representatives, and have a dual accountability to the regional government and the MOH (Meimanaliev et al. 2005). Therefore, Kyrgyzstan depicts another post-Semashko system that evolved towards considerable autonomy of stakeholders through the means of delegation and de-concentration. Still, this decentralised system is built around the original hierarchical structure, and the MOH has a voice over what and how resources are allocated. An important feature of the Kyrgyzstani hospital system is the intended autonomy of providers, which has not yet fully materialised due to legal, financial and capacity constraints.

3.5.3. Moldova

Throughout the 1990s, Moldova continued with the structure inherited from the previous system. The 1999 reform decentralised some tasks of health care administration to territorial health authorities, notably including governance of provider organisations. Restructuring of the hospital sector was carried out by empowering stakeholders at all levels of government, a negotiation process of new standards and norms led by the MOH and involving decision-makers at all political levels, and ensuring international donors' and the World Bank approval for the objectives and means of the reform. The autonomy and flexibility of sub-national governments facilitated change and was a key assumption behind the effective sector overhaul (Cercone & Godinho 2001, MacLehose & McKee 2002). The launch of the National Health Insurance Company in 2001 put an end to line-item, inputs based budgeting, and caused health care providers to transform from budget-dependent agencies into more autonomous public enterprises. This potentially presented health care providers with greater flexibility in managing their resources. However, the adjustability was constrained at 25% of budget and subject to strict national norms, while modifying the inpatient capacity required MOH approval. At the same time, much power was concentrated in the hands of the regional chief doctor, whose authority ranged from budget planning and control to contracting, procurement, service design and employment. In practice, the chief doctor had the power to override providers' decisions over allocation of their resources. This concentrated influence over the system has been lessened after 2005. However, it was still substantial in 2008.

The MOH involvement in the operation of system remained significant and, besides such stewardship functions as regulation and supervision, includes more direct tools such as price-setting. The hospital sector continues to be emphasised, and its operation is subsidised at the expense of primary care (Atun et al. 2008). Despite the fact that the ownership of inpatient establishments was transferred to territorial levels in 1991, the MOH has retained almost all the instruments for managing hospitals. The MOH is positioned as a central actor even though hospitals are formally owned by sub-national governments and financed through National Health Insurance with the right of budget-holding. These inconsistencies have their source in the provisions of law, starting from the Constitution that explicitly makes the central government responsible for the health of the population, and HCS regulations that fail to specify how key health care competencies are distributed between the sector stakeholders (Turcanu et al. 2012). Therefore, the general picture of Moldovan HCS is a mixed one: many powers have been formally decentralised, but rigid structural features and unclear legal provisions constrain the autonomy of providers and their founding bodies.

3.5.4. Russian Federation

Due to the sheer size of its population and territory, the Russian Federation runs a federally decentralised system. Each state operates its own health care system, but this is more an effect of the weakness of the central governance rather than intentional decentralisation. In fact, the system is so fragmented that, at the national level, it is on the verge of disintegration. This is a consequence of a number of factors. The early 1990s' reform efforts, aimed at the relaxation of input norms, centrally set salaries and staffing levels, as well as moving away from line-item budgets, were thwarted by the central government's weakness, managerial incapacity at all system levels, and notably corruption. Direct MOH supervision over regional financing and provision was nonetheless abolished in 1991-93, making health care a regional competency. Some recentralisation has been taking place since 2005 under the National Priority Project – Health, and further recentralisation was envisaged as of 2011.

At the regional level, the system is often structurally and functionally lacking, and driven by the Soviet tradition rather than current objectives. The fragmentation implies a lack of certain high-level functions such as strategic planning, information systems, norms and standards, which result from both the Soviet inheritance and unsuccessful decentralisation that has decomposed the old system without establishing a complete new structure. This improvised system creates ample space for individual influence, but lacks in monitoring, coordination and control, thus nurturing the environment of corruption (Tragakes & Lessof 2003).

At the provider level, however, no meaningful decentralisation took place until 2011, when legislation allowed providers to change their legal status, potentially increasing their operational autonomy. Uncertainties surrounding the legal provisions and outward hostile attitude of the political class towards non-state forms of ownership hindered the transformation, however. As a result, providers continue to exist as budget-dependent public health establishments, which are politically driven, which do not require an appointment of professional executive bodies, and which provide little economic incentive for efficient operation. This implies the continuation of Soviet system management practices, such as line-item budgets, salaried workers, political interference, and wasteful performance (Popovitch et al. 2011). Antoun et al. (2011) characterise this as a hybrid between the Soviet-type administration and New Public Management. They also advocate a further shift towards autonomy of health enterprises, by strengthening the principles of accountability and performance and aligning them with HCS objectives. Similarly, Gordeev et al. (2011) argue that the reform emphasis should be shifted from the financing model to governance arrangements, with a particular focus on the implementation of mechanisms for efficiency and cost-control.

3.6. Stage 3: Devolved hospital ownership

3.6.1. Hungary

In Hungary, after an early devolution of 1990, territorial governments have been at the centre of the hospital sector (Gaál et al. 1999). While national institutes and university clinical departments remained under direct control of the MOH and the Ministry of Education, ownership of a majority of hospitals (76% of hospital beds in 2002) was devolved from the state to sub-national governments, from 1997 making them responsible for debt and asset management (Gaál & Riesberg 2004). The Constitution gives regional governments the authority and responsibility to manage their regional health care provider networks. Yet, sector-specific regulations fail to clearly refine the role for territorial governments' despite extensive decentralisation, what has been argued one of the key shortcomings of the Hungarian reform. Another one is the strongly politicised process of appointing hospital managers, who are selected according to party membership rather than objective competence criteria (Orosz & Holló 2001). Being politically subordinate to a political party limits the managers' scope of autonomy, and prioritises political gains over health outcomes and economic performance of the hospital unit. Moreover, passive attitudes of territorial governments, typical of the previous system, are reported to undermine the central government in reform attempts (Füzesi et al. 2005).

The MOH stewards the system, among other things, by setting nation-wide health policies; currently it also monitors and influences the National Health Fund. The extent of decentralisation has been subject to fluctuations, with shifts of power between levels of sub-national government in 2002-2010, and some back and forth movement between the central government and other stakeholders (recentralisation of health care financing in 1998, re-assumption of control over medical profession regulation and licensing of pharmacies in 2007) (Gaál et al. 2011).

Efforts have been made to encourage private capital involvement, by providing in 2008 legal grounds for the corporatisation of hospitals. Strong political resistance hindered this process, and hospitals perpetuate as predominantly publicly owned, budgetary entities. Between 2008 and 2010, 36 out of 126 hospitals had been corporatised; this was expected to do away with political interference, bring forth higher information and accounting standards, as well as facilitate re-organisation of hospital networks through mergers, adjusting catchment areas, joint ownership by adjacent localities, flexible forms of employment, outsourcing and contracting out hospital management to the private sector (Orosz & Burns 2000). However, the legal possibility of corporatisation was rescinded, and the relevant changes reversed, in 2010 by the central government. This implies that hospital staff, specialists in particular, continued to enjoy the status of public servants, which gives them occupational protection through trade unions and

restrains adjustments of staffing levels. Moreover, hospitals, as budgetary establishments, do not produce full accounting information, disallowing an analysis of cost and performance.

A number of issues have been identified in the process of empowering health system stakeholders (Orosz & Burns 2000, Füzesi et al. 2005). Many of those issues concern the responsibilities of territorial authorities vis-à-vis financial and managerial powers at their disposal. In consequence of inadequate capacities, the empowered sub-national governments failed to effectively administer their hospital networks: they neither managed to avoid duplication of functions and excess capacity of the hospitals endowed with, nor they had the opportunity to plan, prioritise and develop their establishments with the long-term perspective. Imbalances in hospital catchment areas, unsolved because of the sector regulation encouraging regional competition rather than cooperation, resulted in concurrent insufficient and excessive demand, causing debt accumulation under the soft budget constraint. The incapacity to cover financial deficits, while at the same time refusing to allow hospital bankruptcy and liquidation, led to the central government bailing out insolvent hospitals, which in turn created a problem of moral hazard.

Lastly, the Hungarian statutory health fund only covers current expenditures, explicitly excluding the costs of depreciation and capital investment. The latter remain the responsibility of the funding bodies, i.e. territorial governments. However, their financial capacity is limited, therefore for this purpose they rely on investment grants and subsidies, conditional and matching, allocated by the central government. This process disincentivises sound strategic purchasing and restricts the autonomy of hospital managers, who are unable to build up financial reserves for capital investments, cannot borrow from the capital market to fund vital facilities, but also cannot make disinvestments as these decisions rest with the local assembly. As a result, facility investments depend on the availability of subsidies and are subject to political and budgetary games rather than made on medical and economic grounds.

3.6.2. Poland

In Poland, decentralisation of the HCS started in 1991, when regions and districts became involved in the process of organisation (i.e. financing and planning) of hospital care provision. The next step, devolving hospital ownership to respective territorial units, coincided with a reform of territorial division and the introduction of Social Health Insurance. These reforms changed the structure of regional self-government, imposed new competencies on the newly formed authorities and terminated dependence of hospitals on the central budget (Karski et al. 1999). The hospitals dropped their legal form of state budgetary entities, making territorial governments the sole founders of independent health care institutions (90% in 2005). This form of public ownership separated the provider from the founding body. While the founding bodies bear the financial responsibility for their establishments, providers are primarily financed by

competitively tendered contracts with the National Health Fund. Central and regional budget financing of health care is still in place, contributing to the hospital sector mainly through financing health services for the uninsured population and subsidising capital investments (Kuszewski et al. 2005).

Kozierkiewicz and Karski (2001) argue that de-concentration and devolution of the early 1990s was a nominal change that had little implication for managerial decisions regarding hospital operation. Decentralisation created autonomous units that enjoyed the public backing while not being held accountable for their performance. Hospital directors would answer to supervisory boards representing the territorial government, staff and trade unions, but in many cases the poor overall governance would lead to persistent financial losses. In fact, the devolution of hospital ownership was dubbed "tossing the hot potato" of hospital debt from central to regional governments rather than an empowering step towards permanently solving the problem (Golinowska 2008). In addition, public hospitals have enjoyed favourable treatment by the sector's regulation: disadvantaging non-public hospitals by obligating payers to contract all public providers despite the nominal rule of competitive tendering, requiring exclusivity under National Health Fund financing thus forbidding concurrent contracting with private health plans, as well as political interference in bidding for contracts (McMenamin & Timonen 2002).

Another reform design feature is that three levels of sub-national government exist in parallel without superiority relationships, and operate independently according to their statutory responsibilities and organisation. Consequently, replication of their functions, as well as the lack of formal relationships or coordination has been a matter of concern. Top-level regional authorities, currently responsible for strategy and planning of service provision and medical infrastructure according to health needs of the population, have been suggested to be in position to take on the coordinator role (Panteli et al. 2011).

A key function of territorial governments is to act as quasi-owners of hospitals, ensuring operation according to the legal purpose by supervision and control, which also involves monitoring and evaluating health units and their managers. Territorial authorities can found, transform and close down facilities, as well as change their purpose and capacity through capital investments and disinvestments. However, they do not have influence over contracting with the National Health Fund, while most commonly hospital debts result from provision of services beyond the volumes contracted with that Fund. This is problematic in the light of the provision of law stating that financial loss does not constitute a justification to close down a unit, if its range of services is deemed necessary from the perspective of population needs. Thus, autonomous units operate under loose accountability arrangements, and the insolvent ones do not face the peril of market exit. The founding body, on the other hand, is burdened with debt

which is beyond its control. There are few formal measures in place to curb this moral hazard and impose financial discipline (Włodarczyk & Karkowska 2005, Panteli et al. 2011).

One response, albeit severe, stems from the right of founding bodies to liquidate the insolvent hospitals or transform them into joint-stock companies. The latter corporatisation, or commercialisation, is a process of transformation of a public health entity into a publicly-owned company regulated by the code of commercial companies. This introduces corporate management and reporting standards, forcing the founding body to carefully manage loss and debt by eliminating the possibility of claim against the founding body. This solution has been encouraged from 2009. As of April 2010, 16% of public hospitals had their legal status changed and achieved good financial and quality performance. However, this number is likely to include the hospitals that had already performed well and used the opportunity to heighten their standards and send a signal of good performance (Boulhol et al. 2012). From 2011, other than allowed for by the voluntary transformation, territorial governments are bound to cover a hospital debt within 3 months of its appearance on the financial statement. Failing to do so triggers a legal procedure that forces the transformation within the next 12 months. The process will lead to the closing down of some poorly performing hospitals.

3.6.3. Romania

Romania took first steps towards decentralisation of its system in 1992, through de-concentration within the structures of the MOH and the central government, delegation of health insurance administration, and devolution of selected primary care and public health responsibilities. (Vlădescu et al. 2005). Implications of this for the hospital sector were limited, and at that stage the centralised structure was maintained with vast decision powers remaining with the Ministry. Under this arrangement, until 2001, various changes affected the accreditation process, the classification of hospitals, as well as their organisation and management (Busse & Dolea 2001). A more meaningful decentralisation took place in 2002, when territorial authorities were put in charge of local health councils with the power to manage their provider networks, including managers' appointment, controlling and supervising, licensing, and planning, albeit with some direct control over these functions from the MOH. More importantly, ownership of hospitals has been devolved. The same reform enabled establishing private wards in public hospitals, but form has not proven impactful. Hospital managers are nominated by a health authority (previously by the district public health authority, more recently by the MOH) in a competitive process. More recently, the managers have been evaluated on both their achievements in the field of medicine and managerial skills, which are subject to performance assessment. Executive power in hospitals is held by a committee of directors, headed and appointed by the manager. Recurring hospital debt indicates a misalignment in the governance structure on one hand, and an underfinancing of the system on

the other (Vlădescu et al. 2000, Vlădescu et al. 2008). In early 2012, the government efforts to alleviate the problems of corruption and underfinancing through privatisation, including the replacing the state-controlled health insurance company with private insurers, were thwarted by massive public protests (Holt 2012).

3.6.4. Slovakia

Slovakia sustained the integrated model for a decade after the fall of communism. Hospitals remained under direct control of the MOH and had little discretion over allocation of their resources. The old system persisted because of the central government's fear of reform steps that could have been associated with privatisation of the health sector, and because of sub-national governments' reluctance to take responsibility for hospitals they did not have the capacity to manage, finance, and upkeep. Autonomisation of public facilities (through conversion from budgetary units to non-profit making public establishments) in 1999-2002 led to loosening the control over their financial performance. At the same time, the introduction of SHI reform was not accompanied by adequate regulation of financial discipline. Altogether, this led to rapid debt accumulation. The situation was worsened by the negligence of financial audits, the lack of reliable debt data, and the presence of corruption, as preferential treatment of debtors could be obtained by bribes. Curbing this loop was one of the key objectives of further reforms. Transformation of health insurance funds into private (joint-stock) health insurance companies increased the prudency and effectiveness in managing their assets. To facilitate the clearing of backlog payments, a state consolidation agency was created. The reforms proved successful, and after the last bail-out in 2006 the agency was abolished (Hlavacka & Skackova 2000, Hlavacka et al. 2004, Szalay et al. 2011).

In 2004, legislation became effective devolving to territorial governments the control over their respective health care provider networks. This occurred in the context of a mixed distribution of competencies. Setting health outcome targets, bed capacities and physical assets as well as user charges remained with the MOH. Deciding upon the range of medical services provided within a hospital became a shared prerogative. Territorial governments became founding bodies owning and supervising public health care establishments, with the right to appoint directors, implement new technologies and contract facilities out to the private sector. Hospitals were put in charge of their own performance goals, procurement, salaries, staff mix, strategic development as well as clinical management (Veillard 2003). Removing day-to-day hospital administration duties from the MOH shifted its role from direct provision towards regulation and strategy-setting.

While transformation of public hospitals into non-profit joint-stock companies was initiated in 2002, the process has faced considerable political resistance and so far has not been fully realised. A repeated attempt to transform all hospitals into joint-stock companies, which was

meant to become effective at the end of 2011, was again nullified by a public and health professionals' backlash (Wyszehrad 2011).

3.7. Stage 4: Corporatised hospitals

3.7.1. Armenia

Armenia departed from the integrated system in a series of reforms between 1996 and 1998. Firstly, managing the regional health budget, contracting with providers, and monitoring quality of care were delegated to local governments. At that stage, setting prices and levels of coverage remained a competency of the MOH. In 1998, a SHI fund was established to take over provider contracting and reimbursement. Secondly, in 1996, ownership of hospitals (excluding tertiary establishments) was transferred to territorial governments. Two years later, budgetary health units were converted into joint-stock companies, which made them considerably more autonomous, with respective governments as sole owners and supervisors. Hospitals were put in charge of their resources and conditions of provision, including the right to retain profits, using the budget surplus for investment purposes, contracting with insurance companies, and setting prices for services outside the statutory package. This setup has turned hospitals to effectively operate as profit-seeking companies, making a case for corporate taxation (Jowett & Danielyan 2010). Still, prices and volumes of basic benefits remained to be regulated by central authorities. A few obstacles prevented this transformation from coming into full swing. For one, governance mechanisms at founding bodies' disposal were unclearly defined, so the extent of accountability and the distribution of decision-making powers are uncertain. Moreover, hospital administrators do not have the managerial experience to perform the array of functions they have been delegated. As a result, they resort to the Semashko ways of running their facilities. In addition, within hospitals, the administrative structure is hierarchical and all key decisions are often made personally by the director. It is not a common practice for hospitals to have a managerial board or another governing body. This results in a concentration of power, ad hoc management and a lack of strategic planning. Furthermore, there remain a number of issues in the system of payment incentives that in some cases encourages unnecessary hospitalisations, inducing the numbers of admissions up to a contracted limit, while in some other cases it sets reimbursement levels below the cost of production. Some governance functions, such as prospective planning, contract negotiations, utilisation management and clinical guidelines, are also missing. Overall, the system is characterised as a segmented hierarchy, with few horizontal linkages and mechanisms for coordination at sub-national levels. Vertical links have also been loosened. Regions have to comply with top-down orders and policies, but do not have to report back and have little inputs into planning and regulation (Hovhannisyan et al. 2001, Hakobyan et al. 2006).

3.7.2. Bulgaria

The socialist model of health care operated in Bulgaria until 1992, when most health care facilities were devolved to territorially elected governments. The system structure was flattened as result of a 1995 reform, which shifted administrative tasks from the MOH to regional health centres (Hinkov et al. 1999). A two-step reform of 1997 and 1999 aimed at rationalising the hospital network by replacing central control with managerial autonomy (Koulaksazov et al. 2003). Since 2000, hospitals effectively operate as for-profit limited liability companies owned by territorial governments or joint-stock companies. In the latter, the majority stake is held by the regional or is shared between regional and central governments; a mixed ownership arrangement of 51% state and 49% territorial government is not uncommon. The above reforms were driven by the principles of quasi-marketisation, decentralisation and pluralism in ownership. The process of involving territorial authorities led to them owning nearly 70% of multi-profile hospitals as well as to their participation in planning, organising and running the health care system (Delcheva & Balabanova 2001, Georgieva et al. 2007).

There has been much regulatory progress in the hospital sector. For example, since 2002 the National Health Insurance Fund contracts hospitals irrespective of their ownership status, and since 2004 patients have a free choice of any hospital in the country, public or private. In 1998, there were 16 private hospitals in Bulgaria, and by 2009 their number increased to 93, representing 30.4% of hospitals and 14.3% of hospital admissions. Private hospitals are believed to focus on problem-free, most profitable clinical pathways. One reason for this is the fact that private and public hospitals do not compete on an equal footing. Partial covering of clinical pathways' costs by the Fund promotes public hospitals that use their own budgets to make up for the shortages of reimbursement, while private hospitals need to seek other sources of revenue (Balabanova & McKee 2002, Dimova et al. 2012). All hospitals may impose charges on private patients, and it is a popular practice to book charges as donations so as to avoid taxes.

Irrespective of their ownership status, hospitals make profits they are allowed to retain. However, public hospitals have failed to reach profitability, partly due to poor management, and partly in consequence of unrealistically low levels of reimbursement. In 2001, 24 out of 46 public hospitals reported losses. Thus, the sector transformation did not lead to the expected reduction in the bloated hospital sector, as local authorities maintain hospitals that consistently report losses (Datzova 2003).

The distribution of decision powers represents a mixed landscape. Hospitals are managed by boards of directors, which make executive decisions regarding staffing, procurement, and user fees. The founding bodies decide upon hiring managers, managing physical assets, setting bed capacities and the scope of provided services. The MOH sets performance and quality targets as well as directs the strategic development. Choosing technologies for implementation as well as

salary negotiations are collective tasks. Incentives for careful strategic investments have been strengthening between all stakeholders: managers who administer facilities as well as central and territorial government who subsidise hospitals in upkeep and capital investment (Veillard 2003)

In the light of many favourable institutional arrangements, the lack of experience and know-how has been reported as an impediment of this new incentivised environment. Because of the inadequate managerial capacity, as well as due to the presence of corruption, developments at the territorial level are often informal, irregular, ad hoc and whimsical (Prohaska et al. 2005).

3.7.3. Czech Republic

Dissolution of the Semashko structures in 1990-1992 resulted in a broad programme of de-concentration, both in terms of financing (the inception of SHI) as well as system governance. With respect to the latter, district authorities, structurally independent from the MOH, were put in charge of ensuring adequate health care, with the power of founding and licensing facilities, appointing directors, and allocating funds for investment. Their real executive powers were shaky and constrained by a substantial autonomy of insurers and providers. Hospitals operated as state-owned and territorially-administrated institutions (Busse 2000).

The second wave started in 2003 and was triggered by a reform of public administration that abolished district health departments. The reform involved devolving hospital ownership to regions with their simultaneous transformation to joint-stock companies. The process has also been termed "regional centralisation" as it transferred considerable powers from the disbanded districts up to the newly formed regions, limiting autonomy down the stream (communities and hospitals), but proving an effective tool in rationalising hospital networks (Jaroš et al. 2005). In terms of governance, the hospitals remain dependent on, and accountable to, the sole owners of regional governments, but their recurrent costs of operation are covered by purchaser organisations and the owning bodies do not participate in the contract negotiations (Rokosová et al. 2005, Bryndová et al. 2009).

In 2006, the Constitutional Court confirmed the non-governmental, non-profit status of public hospitals, highlighting the independence of the supervisory board from the founding body. However, due to concerns over protection of public property, political influence continues to exist as far as hospital management is concerned, and the strategic self-dependence of hospitals is limited. Compared with a mature system of corporatist-style governance, hospital governance in the Czech Republic was found lacking in objective appointment procedures and definition of performance goals. Relatively small boards have the advantage of higher flexibility and responsiveness, but this comes at the cost of an inconsistent ad-hoc style of managing, the possibility of non-representativeness of stakeholders and a higher risk of self-interest and

corruption. The latter is likely reinforced by inadequate token payments that board members receive for their services (Ditzel et al. 2006).

While the above is the dominant arrangement, other significant forms of ownership exist in the HCS. The Ministry remains in direct control of national and highly specialised health centres, university hospitals and research institutions. These account for ca. 13% of facilities and 31% of beds. As for the private sector, privatisation has been part of the transition since the 1990s, and in 2000 accounted for 32% (64 out of 203) of hospitals, corresponding to 10% of beds. Their legal status comprises both not-for-profit charities and foundations and well as for-profit (Busse et al. 2001, Háva & Mašková 2011).

Early reforms came across obstacles typical for post-communist countries: a lack of actors' responsibility, insufficient know-how vis-à-vis comprehensive managerial tasks, shortfalls in the political mandate to carry out a complete system overhaul, and difficulties in achieving across the board quality of regulation. Still, assessed against the CEE/CIS background, decentralisation, pluralisation and autonomisation in the Czech system have been progressively high since the 1990s. Collective decision-making is reflected in the presence of various stakeholder groups on health plans' boards, participation in regulatory negotiations and public tenders for health provision, in different configurations. Overall HCS transition has proven politically stable and successful in improving health outcomes, meeting population needs through the development of services, and adaptation of new technologies (Jaroš et al. 2005).

3.7.4. Estonia

Since 1994 hospitals, formally subordinate to the Ministry and void of individual governing boards, were increasingly exposed to market pressures, were required to face input markets, and enjoyed relatively extensive autonomy. This involved investment decisions, setting staff levels and salaries, renting facilities to the private sector, and borrowing from the capital markets with unclear legal responsibility in the eventuality of default (Palu & Kadakmaa 2001).

It was not until 2002 that Estonia underwent a major health care system restructuring. At that time, ownership of hospitals was transferred to territorial governments, and their status changed from public budgetary health establishments to non-profit organisations operating under the commercial code. The legal status takes the form of joint-stock (limited liability) company or foundation; in practice, there is little difference between the two alternatives. Founding bodies exercise control over hospitals by nominating governing boards. Joint ownership is permitted, leading to hospitals being founded by multiple adjacent governments as well as governments of different levels of the territorial division. This has allowed for a number of consolidations and mergers essential to the rationalisation of hospital networks. The potential benefit of having a broader founding base thanks to multiple owners is in practice overshadowed by the blurred

responsibility for hospital performance and free riding that materialises in reluctance of owners to contribute toward capital investments. There is also a situation of hospitals' dual accountability: to the health fund with respect to provided health care services, and to the funding body for overall performance and financial status. The above developments altered the role performed by the MOH, from hands-on hospital administration towards licensing, supervision, and public financing (Jesse 2000, Jesse et al. 2004, Koppel et al. 2008, Jesse 2008).

3.7.5. Latvia

Latvia decentralised its health care system in 1993 by charging territorial governments with the task of managing provider networks in order to ensure accessible care according to local need. This entailed devolving the ownership of hospitals along with the usual funding body responsibilities. Correspondingly, hospital directors enjoyed increased autonomy, e.g. in negotiating salaries. The ownership transfer excluded tertiary hospitals – in 1999, 52 out of 151 hospitals remained under direct control of the MOH. With effect from the year 2000 "Law of Commerce" legislation, public (state and territorial) health providers were transformed into capital entities assuming the form of limited liability state stock company. Under the new setting, hospital managers have been appointed by, and accountable to, the founding body, and enjoyed a considerable autonomy in managing their facilities. In fact, poor accountability, low standards of governance and blurred boundaries between public and private sectors have been identified as factors conveying corruptive opportunities in the health sector (Karaskevica & Tragakes 2001, Tragakes et al. 2008).

3.7.6. Lithuania

With effect from the 1991 decentralisation reform, territorial governments became owners of hospitals (except national centres). As well, they were put in charge of territorial health care budgets. This strengthened their role in the HCS and catalysed hospital autonomy. From 1997, public hospitals were successively transformed into non-profit organisations acting under the commercial code, managed by executive boards, and accountable to the MOH or respective territorial government. Setting the global limit on health spending and deciding upon capital investments remained competencies of the central government (Cerniauskas & Murauskiene 2000).

A number of issues marked Lithuanian governance transition. For one, increasing hospital autonomy led to coordination issues and reduced the control over their financial and clinical activities. As in other countries, accountability mechanisms were not adequate to maintain the coherence of the decentralising system (Logminiene 2001). Moreover, until 2010, a conflict of overlapping competencies existed between the district physician and territorial authorities. The former was appointed with the charge of organising district-wide secondary health care on

behalf of and with the involvement of the MOH. The latter were made formal owners of health provider organisations. The conflict originated from unclear laws that failed to align the formal public responsibility with real influence, in this case represented by decision powers over establishing, administrating as well as liquidating facilities. The flawed implementation had long-term repercussions for the sector, and even the elimination of the district authorities in 2010 did not fully resolve the conflict of control over hospital networks (Kiskiene et al. 2010).

In consequence, provider network restructuring tended to be small in scale and problematic to put into practice, especially in terms of merging well and poorly performing, solvent and insolvent establishments. Political rather than medical or economic reasons underlay many decisions regarding the existence of hospitals, at all government levels. The bureaucratic principle of amassing power, by controlling the largest possible budget or in this case provider network, explains a fair share of Lithuanian HCS developments. Still, some shifting of emphasis from hospitals toward outpatient care has been achieved (Petkevicius et al. 2005).

3.8. Stage 5: A privatised hospital sector

3.8.1. Georgia

In Georgia, the first wave of decentralisation commenced in 1995 involved establishing regional health authorities accountable to regional governments, with the goal of identification and planning for local needs. Two years later, ownership of health care facilities was transferred to territorial governments together with the powers of resource allocation, budgeting, priority setting, quality monitoring, and contract negotiation. The central government, on the other hand, steered the sector using a mix of direct (a national hospital restructuring programme) and indirect (financial incentives, licensing and accreditation, supervision of autonomous units) tools. Problematically, this change disregarded local capacities required for performing the tasks, weak governance structures and the abuse of power by hospital managers (Rose & Gotsadze 2001).

Another step in the sector reorganisation, in 1999, transformed hospitals into either joint-stock or limited liability companies. Unconventionally, these newly autonomised units became subordinate to the Ministry of Economic Development, rather than to territorial or national health authorities. Still, there was an element of dual supervision, as infrastructural changes were subject to the MOH assessment and approval under the Hospital Master Plan (Gamkrelidze et al. 2002). Political discontinuity related to the Rose Revolution in 2003 caused the Plan to be abandoned before its full implementation, which resulted in unfinished mergers, and was replaced with sketchy reductions in staffing and health provider networks as well as a series of sales of state property to the private sector, which altogether did not eliminate the excess capacity before the process was brought to a halt in 2004.

Reforms initiated in 2006 were aimed at a complete transformation of the sector toward private provision and financing, and liberal market regulation. In result of the Hospital Development Master Plan carried out from 2007, a vast privatisation of the hospital sector took place, and ca. 80% of hospitals were privatised between 2007 and 2008. Unrestricted types of private investors were allowed to bid in the process of competitive tendering for public hospital ownership, including the pharmaceutical industry and property investment funds. Defined in the Plan were criteria of geographic availability, integration of specialisations into one facility, and inputs (numbers of beds). Investors were obligated to maintain the privatised hospitals' clinical specialisations for at least seven years. Quality and long-term sustainability of the arrangement were in no way safeguarded, however.

Public spending accounting for less than 20% of total health expenditure makes it difficult for the MOH to fulfil its regulatory duties through planning or purchasing. Given little direct involvement, more effective regulatory tools are needed in order to steer the market-driven sector towards the social goals. For example, it is reported that privatised hospitals owned by the pharmaceutical companies operated according to their own clinical practice, disregarding the national guidelines. In the 2003 and 2006 waves of deregulation, the Ministry's licensing, certification, and control powers were weakened, in line with the envisioned self-regulation of providers and insurers. Accreditation procedures were discontinued under the assumption of supply-side deregulation, and most of the remaining regulatory functions were transferred to independent organisations. Consequently, current leadership capacity of the MOH, in particular its ability to drive any change in the health sector, is very poor (Chanturidze et al. 2009).

3.9. Summary of transition stages

Section 3.4 presented the post-Semashko health systems that have seen no or only cosmetic changes applied in their structures. In countries that represent evolved versions of the Soviet model, such as Tajikistan and Ukraine, the innovation has been limited to delegation of administrative tasks and did not produce meaningful empowerment of sub-national governments or hospital boards. Moreover, the case of Turkmenistan shows that a disintegration of the system leads to worse still outcomes than simply maintaining the crude Semashko model.

To be sure, the above HCSs underwent a degree of adaptation after the fall of communism, adjusting their capacities to the changing patterns of health needs. These adaptation efforts have been primarily driven by central governments that strategically curbed the reliance on inpatient care and cut hospital capacity. However, basic mechanisms guarding the sector operation, including allocation of resources, remained unchanged, which in the long run is going to limit innovation, flexibility, and the overall attainment of health sector objectives. For these structural reasons, it can be argued that this group continues to operate health systems that are based on or closely resemble the Soviet top-down model. Consequently, features of the Semashko systems

discussed in Chapter 2.1, as well as relevant economic mechanisms to be presented in Chapter 4.2, still apply in the above seven countries.

This first step into governance transition involves a transfer of management decisions that take place in the sector. This may take the form of de-concentration or delegation of various extents of decision powers to sub-national levels. Stage 2 countries transfer, outside the MOH structures, comprehensive competencies relevant to managing hospital units and their networks. This is in contrast to some Stage 1 countries that may also employ an extent of delegation, but one that is contained within the national structure and restricted to administrative tasks within the boundaries set at higher levels of the hierarchy.

The powers in question may include, in the area of financing: (1) allocation of budgets, (2) raising revenues through local taxes, and (3) administration of recurrent spending and capital investments. In the area of provision and contracting of care: (4) setting health care supply priorities and capacities, (5) planning volumes of services according to health needs of the population, (6) negotiating and signing contracts with third party payers, (7) shaping provider networks through hospital investment, closure, restructuring, licensing, (8) setting conditions for health care access, such as user charges, (9) organising service provision by adjusting structures, procedures, processes, and technology, (10) outsourcing of core and non-core services, and (11) staffing and employment strategies, e.g. salary levels. Other areas of discretion may include: (12) setting regional priorities, norms and standards, (13) human resources planning, (14) control and supervision after issuing a license for facility operation, and (15) renting out facilities to the private sector providers.

The above competencies may take the form of a direct executive power over health care policy, financing and provision. Alternatively, an indirect influence is possible through appointing governing bodies or directors of local health authorities, such as Chief Doctor, who represent local interests and priorities. The governance structure may position either the MOH or regional governments as the top level, to which territorial health authorities are held accountable. In either case, meaningful decentralisation creates a situation in which some residual claims and political responsibility appears on the side of the newly empowered regional authorities. This common feature justifies decentralisation of management as an independent transition stage.

Looking at reform experiences of countries that have gone through Stage 2, there emerges no single model of such a decentralisation. On the contrary, there is a considerable heterogeneity of approaches. Kazakhstan, Kyrgyzstan, Moldova and Russia Federation feature HCSs that grant allocation powers to sub-national authorities, but subject to formal and informal structural constraints limiting the full benefits of decentralised decision-making. They are a varied group in terms of degrees of regional bodies' involvement and more or less intentional transition paths that led to decentralisation. Kazakhstan, for instance, is a mixed and dynamic case, with

scheduled transformations under way that will likely push it to Stages 3 and 4 of the transition model. In Russia, on the other hand, nearly all health care competencies are held at the regional level. Yet, this is a result of an uncontrolled fragmentation of the centralised system rather than a purposeful decentralisation, a process also fuelled by the size and the federal organisation of the country.

The first countries to decentralise the ownership of hospitals were Hungary, Lithuania and Bulgaria, all before 1993. In certain cases, e.g. Armenia, Hungary and Latvia, this had not been preceded by a transfer of management powers, and thus constituted the first step into HCS decentralisation. As of 2011, half of the sampled countries have transformed their hospital sectors to Stage 3 or further. Discussed in this section were the four countries that currently remain at this stage of transition.

Stage 3 depicts a meaningful decentralisation as defined by the presence of devolved hospital ownership. While devolution is one of the possible forms of decentralisation, along with delegation and de-concentration, it has stronger implications for the distribution of power and responsibility across the health system. Already, at Stage 2, territorial governments were involved in the management of health care provision, but the establishments remained connected to the central budget. Devolution of ownership changes this by breaking the national pool of hospitals according to the administrative division, with hospital sub-networks ceded to respective territorial governments.

The founding body (be it the State, region, district or municipality) bears the financial and legal costs of maintenance, capital investments, insolvency or incapacity to meet obligations. It is also responsible for ensuring adequate facility equipment, for staffing and procurement of drugs, and for medical errors and corresponding litigations. The owner is also financially responsible for implicit social functions performed by the hospital, i.e. any socially valued services that bring marginal revenue below their marginal cost of provision (Jakab et al. 2002b), such as basic health services for the uninsured population with the risk of being uncompensated. This applies both at the level of hospital unit and network, the latter also requiring strategic planning aimed at maintaining a network of hospitals adequate to the geographical distribution and needs of the population.

Developing such a network takes into account the possibility of contracting out provision to the private sector, as in Hungary, often as a product of decentralisation-driven restructuring of provider capacity (Gaál et al. 2011). In Poland and Slovakia, sector regulations did not encourage privatisation of public hospitals, yet some facilities chose to outsource non-core activities such as cleaning and catering to the private sector (Tymowska 2001). The comprehensive task of hospital management was also sometimes outsourced (Hlavacka et al.

2004). Despite the legal opportunities, these practices did not become commonplace and hospitals remained predominantly under public ownership and administration.

Devolution of facility ownership is therefore a shift of financial, legal and operational risks, as much as it is a shift of power to shape territorial health care provision. Moreover, it involves political responsibility for the system performance, notably health accessibility, responsiveness and outcomes. Rationales underlying a greater involvement of territorial authorities in allocation of resources are their information advantages, the ability to carry out unpopular decisions of closing down superfluous hospitals, and possible benefits of yardstick competition of regions.

In practice, devolution of ownership generally brought about increasing health service unit autonomy. As a consequence of breaking the nationally integrated structure, hospitals cease to be part of the MOH-led hierarchy. This means hospitals' boards of directors are nominated by, and accountable to, the new founding body, and the scope of their autonomy depends on the preferences of the regional government. Thus, the hospital managers' discretion in managing their unit would vary territorially, depending on the extent of the founding body involvement in setting goals and strategic planning. Empowering hospital managers would further support the cause of increasing system responsiveness by bringing allocation decisions closer to the point of provision.

What proved problematic, however, was the founding bodies' inability to maintain financial discipline and the lack of legally prescribed mechanisms for effective accountability. This was a surprising outcome, given that one of the central reasons behind devolution was to stop hospital debt accumulation. Repeated debt clearance put a fiscal strain on the government and created a situation of moral hazard where extra funds would flow to poorly performing hospitals, while good performance would be considered a job well done, granting no reward. Moreover, the government bail-outs led to the anticipation that debt was a legal obligation of the state and thus would always be cleared. The soft budget constraint and its implications are discussed in more detail in Chapter 4.5. It was believed that territorial governments would be able to enforce budgetary discipline. This turned out not to be the case, however, and in fact enhanced hospital autonomy exacerbated the problem. The pattern is universal across the analysed countries, and can also be linked to the governance environment conducive to corruption. It was only further developments that proved effective in ending hospital indebtedness (corporatisation, prudential regulation, and supporting mechanisms such as the clearing agency in Slovakia).

Considering the above findings as well as recent developments, devolved ownership of public health enterprises appears to be an interim stage in the process of corporatisation. In all Stage 3 countries the process is under way but, due to resistance of various stakeholder groups, the joint-stock company has not yet become a dominant legal form for public providers.

The first countries to introduce corporatisation at a sector-wide scale were Lithuania, Armenia and Bulgaria in the late 1990s. By 2011, the other three countries described in this section also assumed this legal form for the majority of their hospitals.

Compared to Stage 3, where elements of autonomisation were introduced at territorial authorities' discretion and inpatient establishments remained subsidiaries of their founding bodies, the transformation into commercial law companies takes the transition process one step further. The key features are full organisational autonomy and legal grounds of functioning equivalent to those of commercial companies of the private sector. The latter involve, among other things, legal personality, a defined minimum statutory capital, a control structure (board of directors or an executive committee), information and reporting requirements, as well as the application of uniform corporate tax rules.

Using the merits of this configuration for achieving health care sector goals is the main driving force behind the corporatisation attempts. Performance of hospitals operating under the commercial code may benefit from stricter accounting standards, the real risk of market exit, and breaking the link to a territorial unit's budget. Experience shows that these three measures prove effective at deterring hospital indebtedness and isolating it from self-governments' budgets. At the same time, the case of Lithuania is a warning that this cannot be taken for granted, as a sloppy implementation of accountability mechanisms will reverberate in unchecked financial and clinical performance issues. In terms of corruption and political interference, the clearer organisational boundaries of sector participants limit the opportunities for the preferential treatment of the public property and elucidate stakeholders' actions, without terminating the public engagement in the hospital sector. Thus, it presents an attractive venue for improving the transparency of HCSs in countries where the alternative of privatisation faces strong political resistance.

While the devolution stage emphasised the role of territorial governments, corporatisation highlights the autonomy, responsibility and capacity of individual inpatient establishments, represented by a manager or a board of directors who hold the executive powers. In the institutional environment of heightened internal and external pressures, the managerial capacity is essential for reaping the fruits of increased efficiency and responsiveness, reflected in both health and financial outcomes. Evidently, in countries coming from the communist background, this capacity has been subject to a learning process, and after over a decade of operation the quality of governance is showing signs of improvement.

In the analysed countries, regional governments typically continued to be the sole owners of corporatised hospitals. However, this legal form permits some opportune extensions, including joint public ownership (central and territorial governments, as in Bulgaria) or even public-private partnerships. In the latter case, the hospital is considered public as long a government

holds a majority stake, leaving ample space for the participation of a private investor. Despite the risk of cherry-picking well-performing, profitable public hospitals by private investors, if correctly applied, this may provide an opportunity to modernise or adjust to today's needs the obsolete and overweight networks of public facilities inherited from the previous system.

Finally, two of the reviewed countries deserve to be spotlighted for their reform progress. Armenia, a country in a "medical poverty trap" (von Schoen-Angerer 2004), proves that ownership transformations are not an exclusive domain of industrialised countries. The virtually collapsed Armenian HCS puts corporatisation of hospitals in a different context, with efficiency, quality and cost-containment giving way to the primary goals of basic health protection and improved access to medical services. The Czech Republic, on the other hand, is a success story of pluralism. The transformation of HCS governance has mobilised various stakeholders with decentralised powers and means of participation; the provision of hospital care is balanced between the state, regions and the private sector financed through public and private health insurers competing on a level playing field.

As seen previously in this chapter, privatisation has taken place in numerous countries' hospital sectors, most prominently in Bulgaria and the Czech Republic whose private shares of all inpatient beds are, respectively, 11.4% and 14.2% (WHO HFA-DB). Maarse (2006) notes that while decentralisation itself does not necessarily cross the public-private boundary, it may be a precursor for privatisation. This appears to be the case in CEE/CIS, where privatisation was often a result of hospital network rationalisations that took place in connection to decentralisation processes. In addition, permitting the operation of privately owned inpatient facilities, in most countries from the early 1990s, led to greenfield hospital investments, an alternative way of fostering private ownership. Tyszko et al. (2007) observe that privatisation, by any means, was primarily confined to outpatient providers and remained much more limited in the inpatient sector. Privatisation of outpatient care providers typically precedes that of hospitals, because the latter requires a greater capital base for establishing investors' participation. Moreover, due to inherent complexities, the hospital sector transformation is a sensitive social issue and involves considerable legal risks. For the above as well as for country-specific reasons, in none of the previously discussed cases has private property become the dominant constituent of hospital governance.

Georgia is an outlier in this respect: it is the only country that proceeded with a radical market reform, including a large-scale privatisation of inpatient facilities and the intentional stripping the MOH of its regulatory instruments. These governance-related changes have to be put in the context of financing-side developments. From 1995 to 2004 a quasi-independent public SHI system was in operation. However, due to a macroeconomic downturn, organisational deficiencies and political interference, SHI failed to ensure the availability of the basic benefits

package to the insured. Its problems in generating revenue were so severe that in 2003 mandatory payroll SHI contributions amounted to 5% of TEH. Coupled with poor transparency, negligence of patient rights and information, as well as widespread corruption, the system underperformance led to its dismissal in 2004. Because no alternative prepayment option came to prominence, in 2007 72.4% of TEH was private, 97.9% out of which was out-of-pocket (Chanturidze et al. 2009).

The transition model might suggest that privatisation can be expected to take place in most countries as a natural continuation of hospital governance transition. This is unlikely to be the case in the foreseeable future. Public ownership remains strongly supported across the region and will be maintained, perhaps with some further steps toward New Public Management. However, it has to be noted that corporatisation enables intermediate forms of ownership, including mixed state-territorial and public-private arrangements. It also allows for streamlined or gradual privatisation of individual public establishments, giving more flexibility in asset management and contrasting with sector-wide privatisation programmes that prove politically unpopular. The inclusion of Stage 5 in the model thus serves two purposes: it accommodates the sole case of large-scale privatisation, and signals the consideration of future transformation scenarios, major or minor in scale, that may unfold as an after-effect of corporatisation.

3.10. Lessons learned about governance

The overview of countries' efforts in reforming their health care systems provides a good opportunity to review lessons learned in the process. Given that 22 countries are studied over two decades, this baggage of experience is sizeable. The overall picture of governance has been a mixed one, featuring ambitious changes and success stories as well as overlooked details that hindered the reform potential. In many instances, deficiencies in the basic structure of institutional design had great adverse consequences for the post-reform sector operation. These problems may be country-specific, or they may appear in a number of countries suggesting a more common nature. Either way, they offer a moral for the consideration of future reformers.

3.10.1. Governance matters

The governance landscape of CEE/CIS and the processes of its formation confirm that the distribution of powers and responsibilities among the sector stakeholders, as well as their integrity, are essential components of system performance. In the analysed countries, good governance facilitated the adjustment of hospital capacity and contributed toward financial sustainability and the achievement of health system goals. Poor governance, on the other hand, has a track record of inducing conflicts, stalemates and various forms of moral hazard, in the extreme case leading to a disintegration of the HCS.

3.10.2. A variety of approaches

There were a variety of approaches to decentralisation. The roles of territorial authorities have been quite diverse and include engagement in provider-purchaser contracting (Czech Republic), planning of health services' volumes (Poland, Hungary), issuing licences and monitoring facilities (Czech Republic, Slovakia), maintaining adequate provider networks of primary, ambulatory outpatient, and hospital inpatient care (most countries), the authority to contract out provision to private providers (Hungary, Slovakia), and facility investment decision-making (independent or in the form of central grants as in Hungary). Furthermore, seven countries chose to maintain the model of highly centralised powers.

3.10.3. Aspects of reform quality

Early reforms were generally poorly prepared, and instances of hasty decentralisation led to political resistance. This resistance created a number of problems: delayed progress on reforms, duplication of facilities, and unclear distribution of authority (no explicitly defined functions, overlapping responsibilities, and lack of legal and organisational frameworks for the operation of the sector). The above deficiencies, coupled with the turbulently transforming economy, promoted the conditions of low transparency, irresponsible property management and corruption. The problems were identified in Estonia, Latvia, Hungary, and others. In Lithuania, resulting conflicts of interest between sub-national levels of government persist up to the present day. These countries experienced a wave of re-centralisation in the late 1990s, after the hurried decentralisation was found to be flawed. The recentralisation steps took different forms, e.g. imposing capacity norms in Hungary, and recalling responsibility back to the central government in Latvia.

In Latvia, between 1993 and 1997, territorial governments were put in control of both health funds and providers. This established a conflict of interest and undermines the idea of provider-insurer separation as a means for ensuring more efficient resource allocation. The authorities would endeavour to ensure that health spending was committed to goods and services sourced within their administrative boundaries, through limiting references to external providers, in order to strengthen and expand their own networks of providers. This created issues in quality, choice and accessibility, especially in the light of an uneven availability of diagnostic and treatment facilities across districts. This was a problem on its own, as in the early 1990s mechanisms for equalisation were largely missing, resulting in widened regional gaps in terms of health care capacity relative to need. In the case of Ukraine, this led to deteriorating health outcomes in poorer areas of the country (Lekhan et al. 2004).

These observations are in line with the findings of Shakarishvili and Davey (2005) who write "The relationship between legal status, ownership, management, control, and planning is basic

to the sustainability of the reforms. Those countries that did not ensure the transfer of all rights and responsibilities to one level have left space for unaccountability, lack of incentives and long-term planning. At the same time the process of shifting these rights entirely to regional and private levels has built potential for regional discrepancies"

3.10.4. Synergy with financing reform

The first wave of devolution took place in the early 90s. At that stage most systems were still funded from local and national taxes. Later reforms fundamentally changed the health care financing model by introducing social health insurance and contract tendering. Under the new rules for financing, some regions were left without the capacity for funding the functions they had previously been endowed with, such as investment and maintenance of health care facilities, and certain public health functions (e.g. Hungary, Lithuania). Furthermore, the purchasing function generally remained weak and provider-driven – instead of selective purchasing, health funds would act as passive payers. Thus, for the most part, the transition to competitive pressures in the provider market did not come to be.

3.10.5. Managerial capacity

Most countries found territorial bodies unprepared for performing devolved functions; inadequate know-how and managerial skills hindered early reform outcomes. This has been a universal problem in the sampled countries coming from a communist background characterised by the internalisation of functions within monumental state structures, virtual non-existence of spot or long-term contract markets for inputs and outputs, a predominance of planning, guaranteed life-time employment, and a narrowly trained workforce. It seems that the learning process lasting two decades brought considerable improvements in sector operation, however, the problem persists to various extents. In Armenia, for instance, health care institutions enjoy a greater extent of autonomy and responsibility, but administrators have not yet gotten accustomed to the new, more complex institutional environment. Consequently, they manage the institutions in the "old" ways typical of hierarchical structures (Hakobyan et al. 2006, Jowett & Danielyan 2010), which undermines the efficiency potential of a decentralised system. Similar capacity problems are reported in other countries (e.g. Bulgaria, Kazakhstan, Poland, Russian Federation) at the level of local government.

3.10.6. A change that is not meaningful

Certain decentralisation efforts were depressed by existing or newly established top-down restrictions. This may have been both a result of an intentional design and a non-intentional outcome of poor law-making quality. Despite the fact that ownership conveys full rights of disposition, in certain cases limitations to these rights would be imposed by the MOH. For

instance, under historical budgeting, there would be little leeway for changing the objectives and methods of facility operation. Other constraints include the lack of know-how and the lack of approval for budget reconstruction or new approaches to financing. Such conditions temporarily existed in Armenia, Bulgaria, Latvia and Lithuania. Moreover, in Hungary, unit autonomisation was subject to a number of restrictions, one of which disallowed the contracting-out specialist health services provision to for-profit providers (Gaál 2004).

The problem of decentralisation not being meaningful is particularly exposed at Stage 2 of transition, where countries represented various widths and depths, often incomplete, of administrative functions' delegation. An important feature distinguishing this stage is that health providers and their networks remain a property of the central government, thus limiting the risk, reward and responsibility of the empowered agents.

More generally, in CEE/CIS, with the debatable exception of Russia, there has been no decentralisation in the federalist sense. Health care sector stewardship and policy-making was left a prerogative of the central government represented by the MOH. Although regions may enjoy degrees of independence in assessing needs and developing their provider networks, they have generally not been permitted to create their own diversified regulatory environments.

3.10.7. A politically sensitive matter

Decentralisation within the hospital sector rightly aimed at enhancing responsiveness to local needs and increased accountability. Further changes in legal status were aimed at providing facilities with greater autonomy and individual responsibility in the hope that this would lead to improved performance. On the other hand, the process was also motivated by the political reasoning of delegating the unpopular task of downsizing the overgrown sector inherited from the previous system. For this reason, like many other health care reforms, devolution of hospitals has been branded a game of "hot potato", the stake being the political responsibility for indebted and underperforming hospital establishments. Predictably, this led to political tensions between the centre and the regions.

Hospitals, as large employers and service suppliers, are weighty political assets. Bigger hospitals translate into bigger budgets and staffing capacity, and therefore greater political power. Thus, in many post-communist countries, problems of political influence extend to the interventionism in the public sphere, interference in day-to-day or strategic decisions, the lack of a level playing field for public and private providers, and various entrenched interest groups defending the status quo. For these reasons, closing down hospitals has repeatedly proven a difficult task.

Furthermore, governance transformation is difficult legally and organisationally, demanding expertise and sophistication. As discussed previously, in CEE/CIS, design and implementation of governance reforms often failed due to a lack of professionalism. Recurring failures have resulted in growing scepticism regarding the chances of success and reluctance towards new reform efforts. The popular feelings have been reflected by the increasingly deadlocked political process.

3.10.8. A measure for financial responsibility

Devolution generally failed as a mechanism for imposing financial discipline over hospitals spending in excess of their revenue and stopping debt from reoccurring. This is because it did not involve hardening of the budget constraint. Devolved hospitals were cut off the state budget, but still able to tap into their founding bodies' budgetary resources. In addition, in Hungary and Poland the central governments stepped in to bail out indebted hospitals owned by territorial governments, which set a precedent (Karski et al. 1999, Orosz & Burns 2000). Corporatisation, on the other hand, appears to serve the purpose of financial responsibility rather well. In the source materials regarding Stage 4 countries, hospital debt has not been reported as a major sector issue. This may have been due to the inherent properties of corporatised legal forms: accountability requirements, the risk of market exit, and eschewing the pooling of debts with the founding body.

In principle, the legal owner is responsible for the upkeep and capital investments, financed primarily through its budget catered by general and local taxation (Bryndová et al. 2009). Still, in most countries this responsibility has been thinned down by central governments' targeted facility investment grants. In the European Union member countries, the investment function has been supported by EU cohesion and structural funds (Gaál et al. 2011, Koppel et al. 2008).

3.10.9. Flexibility of corporatised forms

The implementation of corporatisation in the hospital sector displays some heterogeneity. For one, the extent of supervision over commercialised units varies considerably, from factual autonomy in Latvia to increasing but not yet full administrative independence in Armenia. Moreover, compared to public health enterprises, joint-stock companies are more flexible and easily transformed. This enables various mixed forms of ownership, both public (property rights exercised by the MOH and a territorial government, or by various territorial governments) and public-private partnerships. The former was employed in Bulgaria where, as of 2003, regional hospitals were transformed into shareholder companies, with 51% shares belonging to the state and 49% to territorial governments (Georgieva et al. 2007). The latter is a newcomer in the CEE hospital sector and so far has been negligible when compared to Western Europe. However, transforming sector governance can be expected to facilitate further instances of public-private

partnership. Indeed, since 2007, projects of (re)construction, maintenance and operation of hospitals have been under development in the Czech Republic, Poland and Slovakia; health care projects are also in progress or under consideration in Estonia, Hungary, Latvia, Lithuania and Romania (PricewaterhouseCoopers 2008, CMS Legal Services EEIG 2010).

In fact, corporatisation creates an opportunity for the governments to steer their health sectors through non-legislative means. This does introduce a greater flexibility in HCS stewardship, as parliamentary pro-market reforms in the region have a track record of facing strong rejection that materialises in a lack of majority support or a veto action (Hall 2009). This obstruction may be detrimental to the sector advancement. Fidler (2009) shows examples of successful public-private partnerships in non-health public services (e.g. utilities) on one hand, and non-core health care services (ancillary services, outpatient care, commoditised care such as alternative medicine, wellness, cosmetic surgeries, elective and high-tech interventions) on the other. As Preker et al. (2000) show, greater regulatory expertise makes it possible to push the boundaries towards the private sector in areas that have traditionally been the domain of public provision (the so-called "make or buy" decision).

3.10.10. An evolving role of the Ministry of Health

The flip side of growing executive empowerment of decentralised agents is a changing role of the Ministry of Health. Historically in CEE/CIS, governments' influence over the health sector had been heavy-handed and used the bluntest available tool – direct in-house provision. This reflected not only ideological choices but also suggested the incapacity to handle intricacies of health care markets (Preker & Harding 2001). Health care transition has provided an opportunity to depart from these practices and move toward less intrusive public intervention. In the course of transition, the MOH functions have been converging to what WHO promoted as stewardship (WHO 2000), and more recently as leadership and governance (WHO 2010). Travis et al. (2002) identify specific areas of steward activity: (1) generation of intelligence; (2) formulating strategic policy direction; (3) ensuring tools for implementation: powers, incentives and sanctions; (4) building coalitions and partnerships; (5) ensuring a fit between policy objectives and organizational structure and culture; and (6) ensuring accountability.

It is beyond the scope of this study to inspect in depth the evolution of the MOH prerogatives, as they vary considerably between countries and transition stages. Generally speaking, at early transition stages, direct involvement in day-to-day operation may remain substantial. At more advanced stages, the tools for influence become softer (regulating and enforcing regulation, licensing, policy-making, supporting research and development, providing information, setting norms, reimbursement levels, etc.), dispersed between specialised agencies, and include new tasks (e.g. risk equalisation between health plans, health technology assessment). It has to be noted, however, that the MOH universally retained control over tertiary care establishments for

highly specialised care, such as national centres and university hospitals. The MOH also supervises numerous quasi-independent agencies and inspectorates.

Importantly, the changing nature of the MOH and its decreasing involvement in facility administration does not automatically translate into diminishing state participation in the health sector. Through the central and territorial governments, as well as their agencies, the state continues to dominate the sector by means of purchasing and production of services as well as provision of subsidies. This is true for most of medical care in CEE/CIS, with the possible exceptions of general practice and outpatient care.

3.10.11. Overall strength of governance

The above considerations add up to the overall strength of health care sector governance. All the institutions involved, and their interactions, contribute to the quality of governance and thus to HCS outcomes. The case of Georgia's collapsed health system exposes dramatic consequences of across-the-board deregulation, dissolving public governance structures and surrendering sector leadership. The utter confidence in private markets and a lack of basic precautionary measures against market failures underlie the minimal levels of protection offered to the population. At the other extreme, the Czech Republic illustrates the stability and performance benefits of consistent policy development involving many stakeholder groups in exercising authority over the sector.

3.11. Mapping of governance transition

Table 3.1 represents the summary of transition in a layout corresponding to previous studies on the region-wide shift towards SHI (Wagstaff & Moreno-Serra 2009) and dominant provider payment mechanisms (Moreno-Serra & Wagstaff 2010). Using one year "blocks" is in some cases an approximation, but the above papers have proven its illustrative merits. Furthermore, the mapping serves as a basis for the coding of policy dummy variables for the purpose of an econometric study in Chapter 5.

The transition mapping shows the range of progress made by individual by countries and by the region at large, as well as the prevalence of various stages of governance transition. Comparing the years 1989 and 2011, much has changed in terms of how the hospital sector is governed in Eastern Europe. The table also depicts the gradualness of change, highlighting one of the key arguments of this study – the presence of intermediate forms between centralised state and privatised extremes. One resulting observation is that CEE/CIS is converging to the trend of growing complexity of arrangements in the HCS (Saltman 2003). The traditional public-private delineation is becoming less relevant and less capable of describing the actual diversity of ownership, legal forms and objectives of the sector participants. New public forms go beyond

Table 3.1: Mapping of hospital governance transition

Country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Albania	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Armenia	n	n	n	n	n	n	n	o	o	c	c	c	c	c	c	c	c	c	c	c	c	c	c
Azerbaijan	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Bulgaria	n	n	m	o	o	o	o	o	o	o	c	c	c	c	c	c	c	c	c	c	c	c	c
Belarus	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Czech Republic	n	n	n	m	m	m	m	m	m	m	m	m	m	m	c	c	c	c	c	c	c	c	c
Estonia	n	n	n	n	n	o	o	o	o	o	o	o	o	c	c	c	c	c	c	c	c	c	c
Georgia	n	n	n	n	n	n	m	m	o	o	c	c	c	c	c	c	c	c	c	p	p	p	p
Hungary	n	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
Kazakhstan	n	n	n	n	n	n	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Kyrgyzstan	n	n	n	n	n	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Latvia	n	n	n	n	o	o	o	o	o	o	o	c	c	c	c	c	c	c	c	c	c	c	c
Lithuania	n	n	o	o	o	o	o	o	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
Moldova	n	n	n	n	n	n	n	n	n	n	n	n	n	n	m	m	m	m	m	m	m	m	m
Poland	n	n	m	m	m	m	m	m	m	m	o	o	o	o	o	o	o	o	o	o	o	o	o
Romania	n	n	n	n	n	n	n	n	n	n	n	n	n	o	o	o	o	o	o	o	o	o	o
Russian Federation	n	n	n	n	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Slovakia	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	o	o	o	o	o	o	o	o
Tajikistan	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Turkmenistan	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Ukraine	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Uzbekistan	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Legend:

n	[n]on-reform, facilities owned by the state and managed centrally	m	facility [m]anagement devolved to sub-national level		
o	facility [o]wnership devolved to sub-national level	c	[c]orporatised facilities	p	most hospitals [p]rivatised

decentralisation and allow the existence of state enterprises, regional governments' organisations as well as publicly owned but non-state corporations. Private forms differ significantly between for-profit and not-for-profit, with further distinctions possible based on size and statutory objectives. Hybrid forms similar to the British Primary Health Trusts create a merger of private for-profit motives and public interests. Saltman reports cases of melting public and private boundaries also in hospital care, e.g. in Spain and Sweden. This chapter has shown that CEE/CIS is no stranger to these processes.

3.12. An extended typology of post-communist health care systems

In CEE/CIS, changes in hospital governance have been taking place alongside the introduction of social health insurance and a shift from budget-based to activity-based contractual financing. Considering the existing literature, this study proposes to extend the conventional financing-side characterisation of HCSs with their governance features, which would broaden our understanding of post-socialist health care transition and further systematise trends in the region. An updated typology that accounts for this chapter's findings and previously published analyses is presented in Table 3.2.

Cross-referencing the transition mapping with per capita GDP makes it apparent that richer countries tend to operate more evolved systems, both in terms of governance arrangements and provider payment mechanisms. However, this does not offer a full explanation of the existing diversity. Firstly, all the sampled countries, irrespective of income, set out from the common Semashko background, which gave them equal innings. Secondly, the income level, if used as a proxy for the propensity to reform, may to some extent predict a country belonging to the upper (Stages 1 and 2) or the lower (Stages 3 and 4) half of the table, but would not help determine the allocation within the halves. Thirdly, poorer countries such as Armenia and Georgia introduced some of the most forward reforms, while Kazakhstan and Kyrgyzstan are set to proceed to more advanced stages.

Further still, the timing and extent of governance transformation seem unrelated to population sizes and densities. This is in spite of the conceivable hypothesis that larger countries could benefit more from decentralising their structures. For example, Latvia and Lithuania were among the first reformers, and Estonia operates one of the most highly autonomised hospital sectors despite being the smallest country in the region.

3.13. Conclusions

Discussed in this chapter were changes in the hospital sector governance that have taken place after the fall of communism in the countries of interest. The changes encompassed a redistribution of authority and responsibility through delegation, de-concentration, devolution as

Table 3.2: Extended typology of CEE/CIS hospital sector as of 2010

Country	GDP*	Social Health Insurance status as primary financing agent	Dominant hospital payment mechanism	Hospital governance
Tajikistan	969	no	budget	non-reform
Uzbekistan	1,632	no	budget	non-reform
Turkmenistan	2,322	no	budget	non-reform
Azerbaijan	2,490	no	budget	non-reform
Ukraine	3,696	no	budget	non-reform
Albania	4,800	no (est. 1995, primary care and drugs only)	budget	non-reform
Belarus	5,810	no	budget	non-reform
Kyrgyzstan	1,507	yes (since 2009 independent from MOH)	casemix	de-concentrated administration
Moldova	1,657	yes (est. 2004)	casemix	de-concentrated administration
Kazakhstan	5,406	no	casemix	de-concentrated administration
Russian Federation	8,613	no (est. 1993 but only 25% TEH)	budget (casemix)	de-concentrated administration
Romania	6,838	yes (since 1999)	casemix	devolved ownership
Poland	11,753	yes (est. 1999 as 17 sickness funds, since 2003 single fund)	casemix	devolved ownership
Slovakia	12,726	yes (est. 1995, multiple insurers)	casemix	devolved ownership
Hungary	13,674	yes (in various forms since 1988)	casemix	devolved ownership
Armenia	2,295	no	casemix	corporatised
Bulgaria	7,118	yes (est. 1999)	casemix	corporatised
Latvia	8,529	no (est. 1994 health fund is tax-financed MOH agency)	casemix	corporatised
Lithuania	9,518	yes (est. 1997)	casemix	corporatised
Estonia	11,002	yes (sickness funds in 1992, from 1995 single fund)	casemix	corporatised
Czech Republic	16,887	yes (est. 1993, multiple insurers)	casemix	corporatised
Georgia	2,502	no (present 1995-2004, then abandoned)	private, mainly out-of-pocket	privatised

* GDP p.c. PPP$, 2000

Countries sorted by stage of governance, and then by GDP. Est. is short for established.

well as a transformation of ownership structures and legal forms. This has brought about an empowerment and growing autonomy of sub-national governments, hospitals and their managing bodies. Looking more broadly, it led to the adoption of new regulations, reporting and controlling standards, information systems, diversification and pluralism in managerial practices, and strategic development rather than top-down planning, which in turn added up to a trend of increasing rule of law, transparency and accountability. Consequently, one of the key messages is that the evolution of Eastern European HCSs has been a multi-level holistic process, contrary to popular simplifications that conceptualise it as a number of decentralisation instances. Fragments of this changing institutional landscape have been acknowledge by various researchers but, to the author's best knowledge, this is the first attempt to build a complete profile, supplemented with a high resolution mapping, of this facet of CEE/CIS health care transition.

The study proposed a conceptual model of step-wise transition that extends the binary public-private delineation often applied in the context of emerging economies. Indeed, the shedding of a centralised, inefficient, under-incentivised system is not a one-off reform event. The model improves our understanding of the health systems by indicating the presence of intermediate governance stages. These stages have their idiosyncratic economic implications in terms of information assets, risks and profits attributable to various actors. These economic aspects are explored in detail in the subsequent chapter, under the working hypothesis that they have the potential to affect the economic performance of the system.

The evolution of hospital governance has been unfolding in parallel to other milestone reforms, most notably the introduction of social health insurance, new provider payment mechanisms, as well as privatisation in primary and outpatient sectors. Therefore, this present study can be seen as complementary to studies that overview those aspects of CEE/CIS health care system transition (e.g. Atun 2007, Rechel & McKee 2009, Wagstaff & Moreno-Serra 2009, Kutzin et al. 2010a, Leive 2010, Moreno-Serra & Wagstaff 2010, Borisova & Gerry 2010, Borisova 2011).

The study also subscribes to a growing body of literature that reflects an economist's recognition of governance and a broader institutional environment, both through theory and evidence (e.g. Tiemann et al. 2012, Smith et al. 2012, Bayindir 2012). Looking beyond Eastern Europe, the model of governance transition has the potential to extend our knowledge of organisational determinants of HCS performance, in industrialised, emerging and developing countries. Its applicability and generalisability is illustrated by the fact that the inductive model of CEE/CIS transition closely resembles a conceptual decentralisation gradient of service delivery discussed in a theoretical manuscript by Vrangbæk (2007).

This chapter's overview of reform experiences gives the countries less advanced in transition an opportunity to learn from their peers' mistakes. For the more advanced, it is an assessment of their progress and an invitation to think about options for the future. The question of if and how to transform public hospital networks is high on the political agenda in the region, aiming at the policy goals of cost-efficiency, quality and responsiveness of care as well as permanently solving the problem of debt accumulation.

It is apparent that the region as a whole is moving forward. Countries at Stage 1 have introduced traces of decentralisation. At Stage 2 reforms are in motion that may soon give rise to more advanced forms of governance. In all Stage 3 countries there are corporatisation processes taking place, although currently facing considerable opposition. In some Stage 4 countries private hospitals account for more than 30 per cent of all hospitals. The transition model cannot be claimed to have predictive properties, especially as it allows for a substantial organisational and legal variety within each stage, but it does provide a simple framework for explaining the above processes. This capacity stems from the shared point of entry and a reform trajectory emerging from the last two decades. Thus, while the countries are by no means bound to follow the proposed path, the subsequent stages represent a logical continuation.

The uncertainty of future steps is particularly strong regarding sector-wide privatisation, so far represented by a single case. In CEE/CIS, the topic of private hospital ownership is highly controversial, and inpatient care provision is likely to remain predominantly based in the public domain. Hence, in the light of the increasing awareness of economic principles applying in health care, the need for greater fiscal and operational discipline, and the pervasiveness of corruption, corporatisation offers the merits of flexibility, transparency and accountability.

On the financing side, fiscal planning has been increasingly confronted with demographic and social pressures. Private financing is likely to become more prominent, enabling voluntary private health insurance markets to take off, bringing along with them the benefits of health plan market competition. So far, the development of VHI markets has been hindered by the supply-side incapacity to provide care to privately insured patients. Provider autonomy is a step toward relaxing this constraint. On the supply side, organising health providers as limited liability companies owned by sub-national governments will allow them to gradually introduce private capital in exchange for equity. In principle, such progressive privatisation could aid many systems struggling with hospital debt and inadequate capacity, while avoiding public backlash and without forgoing public control. The successfulness of this scenario will critically depend on the soundness of regulation, including clear-cut sector boundaries that will prevent cost-shifting, and strong sector governance that will preclude cherry-picking of profitable establishments or treatment categories by private investors.

The above tensions and directions are consistent with the diverse picture of European health care. Regarding the public and private spheres' coexistence, Europe is becoming more private in terms of financing (Belgium), provision of hospital care (Germany), long-term and community care (UK) and ambulatory care (Poland), as well as in health care management, operations and investment (Germany, UK). In Europe, while universal access and the welfare status of health care are likely to remain in place, a redefinition of solidarity is putting a greater emphasis on individual responsibility. The inevitable limiting of the public benefit package will create space for non-statutory insurance and market-based provision. Concurrently, the processes of management and operation are being increasingly outsourced, and long-term public-private partnerships are likely to expand into prominence (Maarse 2006). Publicly-owned but commercialised forms of provider ownership respond to the needs of the evolving health sector, in Eastern Europe and beyond.

Chapter 4:
Economic implications of transforming hospital governance

4.1. Introduction

The evolution of hospital governance presented in the previous chapter concerned the distribution of powers and responsibilities between the MOH (representing the central government), territorial governments and hospital directors. The aim of this chapter is to present theoretical arguments behind this process and discuss its implications from the perspective of economic incentives. The theoretical arguments compose a framework for explaining how changes in hospital governance affect economic and medical performance of the hospital sector. The framework thus compiles several perspectives that in economic studies are typically considered independently.

The need to unify various aspects of governance relates to the fact that the health care transition in CEE/CIS countries has been sector-wide and comprehensive. Consequently, in a discussion of economic incentives, various levels of decision-makers have to be recognised in order to ascertain the direct and indirect consequences for resource allocation and for their aggregate impacts on system outcomes. Direct implications concern a transfer of decision powers, through decentralisation and empowerment, which can shift weights attached to various priorities, e.g. quality and quantity of care. Creating room for providers to act according to their judgement and independently organise the process of health care production is a critical aspect of transition from a centralised and integrated system towards one based on pluralism. New techniques and priorities may emerge at the provider or network level, depending on the scope of empowerment. Indirect effects of change in governance refer to the fact that institutional design may determine sensitivity to high-powered financial incentives conveyed by provider payment mechanisms.

In terms of the thesis composition, this chapter bridges the narrative account of governance in Chapter 3 and the statistical analysis of its impacts in Chapter 5, by providing a framework for economic reasoning. It contains a compilation and synthesis of economic theories relevant to explaining the meaning of CEE/CIS hospital governance transformation.

Yet, the framework applicability is not limited to post-communist countries. Looking more broadly at the literature of health economics, this present work fits in the trend of increasing attention paid to the problems of governance in health care. Exploration of this area is indicative of the expanding areas of interest for health economists which go beyond financial incentives that have so far dominated the discussion of the institutional design of the medical sector. This trend is induced by the realisation that financial incentives alone have failed to steer the sector towards socially desired goals, vide a discussion of GP fundholding by Hausman and Le Grand (1999). Hence the need to also take into account the structure of internal incentives as well as physicians' motivation and to explain the circumstances under which financial incentives may fail to be effective. These aspects were hinted at in Arrow's (1963) seminal paper, which contains insights regarding agency, delegation, regulation, as well as the possibility of trust under the presence of profit motive. In particular, this branch of economic research has targeted the issues of governance and accountability and drawn upon institutional approaches. For the above reason, the theoretical framework and findings may be of interest to anyone involved in health care system design.

The discussion commences with an overview of incentives in the Semashko systems, which determined performance of the Semashko system and set the ground for reforms of the 1990s (section 4.2). After the change of political regime, democratic governments faced the challenge of re-defining public and private roles in the health sector, considering various justifications and extents of participation (section 4.3). This choice was often made in a difficult political environment and under strong resistance from interest groups. This partly explains why decisions in CEE/CIS were largely biased towards retaining the dominant position of the state, especially in the hospital sector. Consequently, rather than between the public and private sectors, key reforms took place within the public sphere, including decentralisation which re-balanced the distribution of decision powers and responsibilities (section 4.4). Parallel in time was autonomisation of hospitals, one of the means for decentralisation of the HCS. The process encompassed breaking the national hierarchical structure of the hospital sector, empowering managers from passive administrators to executives as well as new legal and ownership and forms, which resulted in a growing independence of allocation decisions made in public health establishments (section 4.5). Empowering territorial governments with the prerogatives of owning bodies, as well as allowing hospital managers to shape their processes of health care delivery, created space for the distributed immediate decision-makers' to reveal their relative preferences for quantity, quality, responsiveness and prestige. While this does not explain

reform effects at the aggregate system level, it could help understand outcomes and outcome variation at the individual hospital level. Thus, for completeness of exposition, a short overview of behavioural models of hospitals is provided (section 4.6). The above arguments are then compiled into a framework of governance-related economic incentives (section 4.7), followed by a discussion of the implications for health care reform (section 4.8) and concluding remarks (section 4.9). The theoretical framework sets a fundament for the econometric study in Chapter 5.

4.2. Economic features and performance of the Semashko model

Some defining characteristics of the communist health sector were discussed in the context of the transition entry point in Chapter 2.1. This section, instead, focuses on economic features of the Semashko model that shed light on the structure of incentives and explain the mechanisms for allocating scarce resources. The central command system notoriously led to the persistence of shortages, non-price rationing and corruption with negative consequences for efficiency, equity, quality and responsiveness.

Under the rule of socialism, the preference for public sector financing and provision was based on ideological grounds. In fact, all sectors of the economy were state-owned, and the sporadic existence of private entrepreneurship and market exchange was no more than an exception to this rule. Albania, Bulgaria and Romania disallowed private practice altogether. On the other hand, markets for primary care were to various extents tolerated in countries such as Czechoslovakia, the USSR, Hungary and Poland. In the all-embracing public domain, health care was seen as a non-productive and low priority sector of the economy, particularly when compared to the privileged military, construction and heavy industries. A direct consequence of this was its budget allocation was often below 4% of GDP (WHO HFA-DB), which magnified the problem of shortages. The limited size of health care expenditures can be also explained with the presence of hidden subsidies across the economy, aimed at supporting the national "champion" industries.

The state-owned health system was paradoxical: on one hand centralised and integrated, on the other fragmented and suffering from information and coordination deficiencies. The system headed by the MOH was paralleled by medical establishments run independently by other ministries, leading to duplication of functions and fragmentation of the pooling structure. The HCS itself comprised multiple tiers that separated services at the levels of elite, urban, enterprise, town and rural, with varying quality and accessibility of care (Ho & Ali-Zade 2001). Advanced, state-of-the-art medicine was available only to the elite patients coming from the privileged political group, the nomenklatura, and their social networks (Balabanova & Coker 2008).

The existence of multi-tiered systems was a form of rationing; queuing was another one. Some market forms of allocation existed, however, the "markets" were dominated by sellers, had constant shortages due to prices inadequately imposed by the government or no prices at all, which disallowed reaching market equilibrium. In the health system, persistent shortages materialised as crowding in health facilities, long queues and waiting lists, postponed treatment and surgeries, as well as forced substitution of specialists and medicaments (Kornai & Eggleston 2001b). Outside the HCS, other rationing vehicles were often used at the individual level, e.g. ration stamps or tickets that were subject to exchange in yet another unofficial market. On top of these forms of rationing there existed a fully-fledged system of informal allocation based on an exchange of goods and favours.

The commonplace capture of public property and its use for personal gain were facilitated by low transparency as well as inferior governance and accountability standards. Every medical establishment was a part of the public health company, which in turn was a fragment of a single-party, state-owned economy. Consequently, rather than regulation and meaningful legal system supervision, the system integrated rules for its operation within administrative norms and procedures. Wrongdoings were generally dealt with "in-house" rather than relying on the justice system, which put health professionals in the position of power and minimised patient empowerment. While in today's HCSs the primary concern around corruption is that it creates inequalities (Vian 2008), the extent of discretionary power abuse in the communist systems, making it a de facto norm of behaviour, had devastating implications for their overall economic efficiency.

Allocation of resources in the Semashko system followed the same rules as the overall economy (Kornai & Eggleston 2001b, Ho & Ali-Zade 2001, Davis 2010). Provision of medical care was based on service quantities, according to detailed plans prepared by planning units placed lower in the hierarchy, and consolidated through districts and regions up to the ministerial level. Moreover, the plans determined inputs in quantity terms, including labour, capital, medical supplies and services. Other than input volumes, the plans specified utilisation norms, for instance bed occupancy rates. Imported medical goods were subject to sudden unavailability, depending on the macroeconomic situation, strength of currency and foreign debt. Wholesale and labour markets did not exist, so prices were outside the scope of the plans. Consequently, there was no purchasing sensu stricto; rather, there was a process of ordering, based on needs, plans and input constraints. Financial planning described rather than determined the plan execution. Thus, the allocation could be expressed in terms of budgets and special grants, however, actual allocations were often in-kind resources as financial flows did not take place. As for the plans, line-item budgets were rigid, centrally disposed and set in line of historical records.

The vertical integration, imposition of pre-determined plans and norms, as well as the passive role of finance and accounting meant that health departments did not face any quality or efficiency criteria; moreover, the system neither motivated nor permitted improved resource allocation. Growth in such a system could only be achieved in the extensive sense, which implied ever increasing volumes of inputs aimed at achieving higher outputs (Popovitch et al. 2011), though not necessarily better outcomes, as opposed to an intensive growth aimed at enhancing technical efficiency of health care production. Moreover, health care was biased towards inpatient provision, which was an encouraged and liberally utilised form of health care.

Other than hospitals the system relied on polyclinics (which typically served as patients' first point of contact with the HCS), dispensaries and public health centres. Health professionals were engaged as staff by the state health company and paid by salary. Good quality was not rewarded and poor quality was not penalised. Directors of health establishments similarly faced no tangible rewards or penalties for economic performance. Strict line-item budget allocation with no possibility of funds reallocation and no availability of spot market purchase limited venues for process improvement, and left them with the role of passive administrators. Distinctions and honours for exceeding the norm, as well as the pride of controlling greater inputs, were the only instruments of motivation.

The system relied extensively on bureaucratic coordination complemented, to a small extent, with market mechanisms, as in the case of labour allocation and in the areas where formal and informal private sector existed (Kornai 1992). The for and against arguments of the communist system were not unlike the discussion of the British National Health Service, where some voices attributed problems in resource allocation to information limitations, while others claimed inefficiencies were inherent to public provision and could not be averted (Spicer 1982). The Semashko system featured all defining bureaucratic characteristics: the presence of a sponsor and the consumer not confronted with the full price of provision, the organisation divorced from its output market, cost savings not readily appropriated to responsible employees, costs and rewards to the bureaucrats unrelated or indirectly related to efficiency efforts, and the monopolistic position with weak or inexistent competition. These characteristics had adverse consequences for efficiency and access, detailed in a rich branch of economic literature (e.g. Niskanen 1968, Moe 1984, Morone 1993, Carnis 2009, Carnis 2010).

The model of communist economy had a number of negative implications for economic efficiency. Budget allocations between sectors of economy were arbitrary, ideology-driven, and disregarded the marginal analysis of benefits that could be achieved by reallocating resources. A lack of price signals disallowed marked coordination of supply and demand. Instead, the command economy used quantity signals (shortage, non-price rationing) and bureaucratic coordination based on centralised decision making. The latter suffered from severe government

failures, including information-related issues, inefficiencies of monopoly, self-interest of bureaucrats, state capture, no threat of bankruptcy or takeover, etc. Bureaucrats' efforts were directed at maximising budgets, as budget size was a symbol of power and prestige and, once seized, it would perpetuate, thanks to historical budgeting. Passive budgets implied that no payment component would be activity-based; in addition, hospitals could not claim any residual, which altogether left any innovation and cost-saving efforts unrewarded (Jakab et al. 2003). These adverse incentives affected economic efficiency as much as other objectives, such as cost-containment, responsiveness and health outcomes. In fact, it would be fair to say that while the above are universal goals of modern HCSs, they were not per se the goals of health care under communism. Instead, the explicit goals were those of universal access and free-of-charge provision (Popovitch et al. 2011).

On the demand side of medical care, poor cost control was a result of weak or no gatekeeping and an ineffectual system of referrals (Ho & Ali-Zade 2001). The latter not only generated oversupply of referrals (leading to further referrals, rather than treatment), but also enabled patients to bypass polyclinics and self-refer to hospitals (Ensor 1993). Moreover, provision was generally free of charge at point of service, with the exception of formal fees introduced sporadically by health facilities for non-essential services. More importantly, patients faced under-the-table payments imposed by doctors who owed the position of power to permanent shortages. Medical staff at public facilities operated a second, unofficial circulation of medical goods and services that relied on personal connections and informal payments.

The wasteful practices of the socialist system caused it to lag behind the capitalist model in terms of technical and allocative efficiency. While precise comparative figures are difficult to obtain for the HCS, because of its inherent complexities (WHO 2001) as well as the scarcity of data prior to 1989, it is informative to see GDP-based efficiency estimates representative of the overall economy. Bergson (1987, 1992) provides estimates of comparative productivity and efficiency for the USSR, three satellite countries (Hungary, Poland and Yugoslavia) and seven then-OECD member states. He finds, at the 1% level of significance, that the shortfall of socialist output per worker ranged from 25 to 34 per cent, depending on model specification.

In a more conceptual discussion, Kornai (1980) explains some preconditions for efficiency and juxtaposes them with the principles of socialist ethics. Among the efficiency prerequisites, he finds (a) material and moral incentive, (b) calculation of cost and benefit as well as termination of non-efficient production activities, (c) fast and flexible adjustment of production to external conditions, (d) entrepreneurship, initiative, innovation and risk-taking, and (e) personal responsibility of decision-makers. In contrast, the socialist ethics assumed (1) wage-setting accordingly to the rule "equal pay for equal work", (2) the principle of solidarity through the elimination of "cruel" capitalist competition, (3) the principle of security, which includes

protection of those in need, full employment as well as any other social achievement guaranteed for all, and (4) priority of general interest over individual interest. By reconciling the two sets of principles, Kornai reveals deep-down constraints in the ability of the socialist system to operate efficiently, and concludes that the founding ideas of communism are inherently inconsistent with efficiency prerequisites.

Finally, the communist HCS exemplifies an antithesis of a fully entrepreneurial (competitive) hospital sector as discussed by Busse et al. (2002). It brought into existence an anti-entrepreneurial model representing, in its extreme form, in an end of the market—central spectrum, where the government decides about the placing and size of hospitals, the range of services offered and modes of production, leaving the providers no discretionary power.

4.3. Implications of the departure from the Semashko model

4.3.1. An institutional milestone

As already discussed in Chapter 2.2.2, the fall of Communism was a milestone occurrence that gave rise to transformative reforms in the HCS as well as in the economy at large. The magnitude of this event has been thoroughly explained within the institutional framework (e.g. Crawford & Lijphart 1995, Smyth 1998, Hoskisson et al. 2000). In fact, the fall of Communism is a prominent example and a proof-of-concept realisation of a rapid redefinition of level one through three institutions of New Institutional Economics (Williamson 2000). This is because it brought about a complete redesign of the legal system (including political processes, property rights, etc.) and of organisational structures (e.g. markets, contracts and private enterprises in place of hierarchical state companies).

The reality check of the early 1990s was painful for the post-Semashko HCSs. The populations of the former Eastern Bloc had to face the fact that the promise of unrestricted and free-of-charge health care was unrealistic, and generous statutory benefits had to be scaled down to meet the existing production constraints. Due to political reasons and strong backlash against attempts to limit the public health care entitlement, the governments were reluctant to openly restrict the basic benefits basket or introduce co-payments. Hence, the adjustment was for the most part carried out indirectly and implicitly, via excessively long waiting times and the resulting growth in out-of-pocket expenditures on medical services purchased in the private market.

However, the fall of Communism also opened up vast opportunities for improvement. Most notably it brought about a shift from a command economy based on non-price signals towards a market economy, where the profit motive is the primary force driving resource allocation towards efficiency. It thus created space for pluralism and innovation. With respect to the latter,

Kornai (2010) argues that the capacity of the capitalist system to innovate and change everyday life of consumers is under-appreciated in the layman's knowledge as well as insufficiently accounted for in economic textbooks. He supports this argument by contrasting the capitalist potential for holistic innovation with the communist system only being able to innovate in the military sphere. Kornai thus draws a causal link between capitalism, technological progress and improving peoples' lives. However, in contrast to the economy at large, the impact of innovation in the HCS has been downplayed by a limited room for competitive market financing and provision, both functions overshadowed by the continuing presence of the state.

4.3.2. Redefining roles for the government and the private sector

A need for new sector principles

At its core, the health sector is shaped by implicit or explicit principles, dictated by various moral, ideological or conceptual considerations. These considerations may be regarding personal freedoms and sovereignty, acceptable extents of state paternalism and its desired forms, altruistic attitudes and social solidarity, understanding of market failures and the resulting need for regulation or direct government participation. Such principles provide a foundation for designing the essential components of the HCS: the choice between direct government participation and delegation to markets, the degree of cost-sharing, ensuring competition, tackling the problem of selection, and providing a solidarity mechanism for achieving the socially desired level of health equality (Cutler 2002). Transitioning away from the centrally managed Soviet model towards markets, pluralism and growing private sector participation demanded revisiting the fundamental questions of rules and priorities for the sector operation. In their book "Choice and solidarity: the health sector in Eastern Europe and proposals for reform", Kornai and Eggleston (2001b) advocate an open discussion of such moral and conceptual foundations, and propose the ethical postulates of (1) sovereignty of the individual (choice), (2) solidarity, (3) competition; desired attributes and coordination mechanisms in the form of (4) incentives, (5) a new government role, (6) transparency, (7) time requirement; and desired proportions of allocation according to (8) harmonious growth, (9) sustainable financing. Kornai and Eggleston then judge HCS building blocks against these overarching suppositions. In practice, post-communist countries ended up with different sets of principles, corresponding to clusters of political systems discussed in Chapter 2.3.2, and manifested by various configurations of the health sector. It is beyond the scope of this study to detail these new rules and priorities, however, the levels of state participation remained universally high.

Rationale and forms of government participation

From an economic standpoint, health and health care are particular intangible commodities. Following Arrow (1963), this branch of economics has considered the nature of the health industry and reasons why health cannot be left to laissez-faire markets. Among the chief characteristics are the presence of supply and demand uncertainty, problems of product and process information leading to the prominence of the agency arrangement and restrictions on competition, the dominant role of insurance in health care financing with its consequences, and ethical aspects of the value of life and health.

A number of issues relating to their nature contribute to the difficulty in deciding about health care production and allocation (Culyer 1971). Firstly, consumer rationality can be argued to be limited as a result of information asymmetries, short-sightedness or outright exclusion from decision-making as is often the case with emergency care. Secondly, there are multiple facets of uncertainty that relate to the measurement of health benefits vis-à-vis costs, quality of solicited care, and the availability of insurance and its value. Insurance cover leads to problems of its own, namely moral hazard in utilisation of the subsidised services. Thirdly, a layer of complexity is added by the presence of positive and negative, tangible and intangible externalities. While economists are primarily concerned with tangible external effects, it is the latter positive psychic externalities (altruistic feelings towards other individuals) that underlie social solidarity mechanisms.

The question is, therefore, whether health and health care should be considered a part of the conventional welfare analysis. On one hand, Wagstaff (1991) demonstrates that a social welfare function can allow for maximising health gains while ensuring a fair distribution thereof. This approach integrates efficiency and equity in overall welfare, as opposed to the usual goal of economic efficiency. The trade-off between the two goals of social policy is left to decision-makers, and thus to the population. On the other hand, a number of arguments have been presented for health and health care to be "meritorious" goods and services, relating to the moral imperative of protecting life and health, which requires special priority and escapes the general welfare analysis. This may lead to using outcome measures other than individual utility, sources of valuation other than the affected individual, weighing of outcomes based on ethical considerations, and allowing for interpersonal comparability of outcomes. These extensions characterise the extra-welfarist framework to which health care is sometimes subscribed (Brouwer et al. 2008).

The above characteristics contribute to the difficulty in determining optimality of allocation and its improvement using the Pareto criterion. Considering also various combinations of market failures, voter preferences as well as provisions of the General Theorem of the Second Best (Lipsey & Lancaster 1956), optimality ranks of various market and non-market allocation

mechanisms cannot be determined a priori by theoretical considerations. The applicability of empirical studies is limited, on the other hand, because of their inherent lack of universality. Deficiencies of theory and evidence altogether make health care reforms a hit or miss effort.

While health care does not have the non-exclusivity and non-rivalry features of a public good, it may be true that markets alone cannot provide it in efficient quantities. Evidence of market failure, as well as tangible contributions of the health sector to the overall economy and economic growth (Suhrcke et al. 2012), are often invoked as justifications for government intervention. However, despite the prominence of market failure in the economic debate of HCSs, it is a relatively minor problem in CEE/CIS, where there are few competitive market arrangements and no instances of unregulated market. In particular, other than the Czech Republic and Slovakia, there are no competing insurer systems that would face the problems of cherry-picking and adverse selection. There are admittedly issues on the side of provision (information asymmetries) as well as moral hazard on the user side, but these issues are restrained by supervision, regulation, and non-pecuniary costs of care to the patient. Instead, given the extent of public participation in the HCS, there are many problems that commonly can be referred to as government failure.

Government failure

Government action is not without problems of its own. Wolf (1979), Le Grand (1991) and others put forward a concept of government failure, paralleling the reasoning of free market deficiencies. The theory explains reasons why and how the government may fail at performing its responsibilities in the areas of provision, subsidy or regulation. Major identified issues include monopolistic position and a lack of competitive pressures, no price signals present in the system, self-interest and other issues of bureaucracy, political competition for government spending, regulatory capture, stifled innovation and competition within regulated sectors, and perverse consequences of redistribution for individual effort. Preker and Harding (2001) further specify that government failure arises in publicly financed or provided health care because of (a) limitations of public accountability, including imperfections of the democratic process, (b) public sector information asymmetries that increase transaction costs and create opportunity for corruption, (c) public monopoly power, manifested in formal and informal forms of abuse, as well as lowering the quantity and quality of output to create a budget residual that can be distributed within the organisation, and (d) failure in policy formulation by inadequate regulatory competency, information and understanding of market failures relating to public goods, externalities and market information asymmetries.

Given the extensive lists of issues in both market and government-led systems, one way of looking at health care sector organisation is finding a balance between market failures and

government failures that would minimise the overall level of underperformance. This leads to delineating public and private domains in health care and facing the "make or buy" decision.

The "make-or-buy" dilemma

Deciding upon the state market participation can be based on two characteristics of goods and services in question: contestability and measurability (Preker & Harding 2001, Preker et al. 2000). The former refers to constraints in market entry and exit. Highly contestable markets encompass competition both within and for the market, which in turn are determined by the level of asset specificity, sunk costs, technological advantage and geographic features. The latter characteristic relates to the precision with which inputs, processes, outputs and outcomes can be measured. The presence of information asymmetry may significantly lower measurability. Preker et al. argue for the government strategy of information disclosure when levels of both dimensions are high. A desired response to the other set of extreme conditions (low contestability, low measurability) is public financing and/or production. Middle or mixed levels of both parameters are areas subject to regulation and contracting. The authors argue that both contestability and measurability can be enhanced through policy strategies, enabling the government to expand the areas of "light" intervention while reducing the scope for intrusive direct participation. The process diminishes the public sphere, enlarges the room for efficient market production, and creates welfare benefits. Further benefits can be attained by using the freed-up public resources to improve the quality and precision of the remaining government actions.

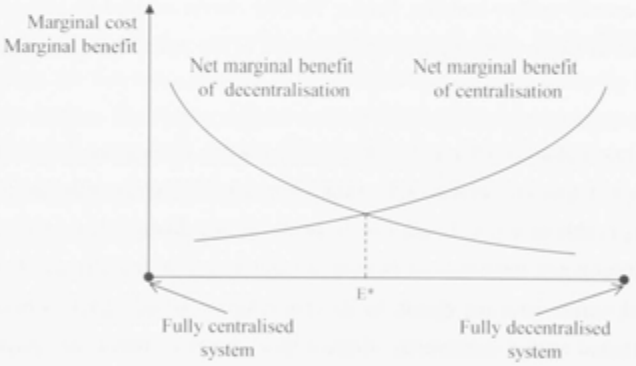
"Make or buy" was not much of a dilemma in the Eastern bloc prior to 1989, given that capital as a factor of production was state-owned across the entire economy. Uniformly with the other sectors of the economy, health care was based wholly in the public domain. However, the question of preferred government interventions became a valid one after the change of the political and economic doctrine. To some extent, health care reforms shifted CEE/CIS health sectors towards industrialised market economies, which employ mixes of public and private arrangements. Nevertheless, a posteriori it is clear that the "make or buy" choices in Eastern Europe left the governments strongly rooted in the sector, which is partly a reflection of the citizens' expectations. Their involvement takes the forms of direct participation in financing and provision as well as supervision and regulation of markets that have emerged. More sophisticated market structures such as private health insurance, regulated competition and managed care have generally not risen to prominence. Yet, as documented in Chapter 3, the legal and organisational forms of central and territorial governments' presence have been evolving, reflecting the growing influence of the New Public Sector Management paradigm and the concepts of the "third way". In Eastern Europe, variations of the mixed economy emerge in result of introducing individual freedom, markets and private property, while retaining extensive

redistribution, regulation and direct state provision (Kornai 2000c). New legal forms and incentive mechanisms make CEE/CIS consistent with a wider convergence of health care systems that come from the state-owned and market-based backgrounds (Saltman 1997). On one hand, the NHS-type systems introduce market or quasi-market environments (e.g. internal markets, fund-holding) in order to incentivise their structure towards greater efficiency. Market-based systems, on the other hand, rely increasingly on regulation and supervision as well as on solidarity mechanisms designed for the purpose of providing a social safety net. The hybrid models emerging from this convergence employ both competitive market mechanisms and strong presence of the government.

4.3.3. Inevitability of decentralisation

The practical outcome of the above considerations has been that the private sector was only granted a minor role in the CEE/CIS health sector. Because markets did not come to prominence, the sector evolution gained limited exposure to economic theory. Less appealingly for economists, in the predominantly public hospital sector, change has occurred as either shifts of power and or transformations of public forms of ownership.

Figure 4.1: Centralisation and decentralisation – a simple economic model



The point of equilibrium E* corresponds to the desired extent of decentralisation.

Given the starting point of an integrated, centralised, and hierarchical model of "public health care company", the system evolution necessarily involved an extent of decentralisation. This is because, on a centralisation-decentralisation scale, the Semashko model represents an extreme case of near perfect centralisation. For such a system, the only way to transform and improve is to take steps toward the other end of the spectrum. A departure from nearly complete centralisation also implies that substantial efficiencies of decentralisation were to be reaped at the expense of considerably smaller forgone benefits of centralisation, assuming that both centralisation and decentralisation are subject to decreasing marginal net benefits. For the sake

of the argument (actual decentralisation processes feature higher complexity and encompass multiple dimensions of governance), a simple model of centralisation-decentralisation benefits is presented in Figure 4.1. Although the desired extent of decentralisation (i.e. the point at which marginal benefits of decentralisation and centralisation equalise) remains debatable, the proposition of involving decentralised health system stakeholders as part of post-communist transition is well-supported by economic theory.

Thus, decentralisation provides a natural way of thinking about systems that were previously fully centralised. De-integration of financing, provision and regulation, the introduction of SHI, changes of legal status and ownership, as well as other changes to the health sector model, can be interpreted along the lines of de-concentration, delegation and devolution of functions that were formerly performed by the MOH on behalf of the state. Departing from the centralised model implied pluralism in organisational and ownership arrangements as well as a lack of direct control. In the political rhetoric of health care reform, this has repeatedly been associated with liberalisation and denominated as deregulation. As Busse et al. (2002) aptly point out, the reality has been to the contrary of the above claims – regulation has increased in scope and specificity.

The initial situation of post-communist countries was different from the Western European context, where systems have evolved from decentralisation and recentralisation along various dimensions of governance, creating a less clear-cut and more complex set of relations between the central government and other sector participants. There, applying the above reasoning (Figure 4.1) would require disentangling the forms and extents of stakeholders' involvement. Notwithstanding the added complexities, decentralisation has been a central concept in many health reforms of industrialised countries, such as the UK, Sweden and Italy, which sought for remedies to various kinds of pressures (Magnussen et al. 2007). After two decades of transition, however, decentralisation dilemmas in many regards have converged to those in Western Europe. Regional idiosyncrasies that remain include a lack of experience and expertise in designing health care systems, resource constraints including capital, facilities and workforce, high public expectations of central government involvement, corruption in the public sphere, and reluctance toward introducing "meaningful" decentralisation (Saltman & Vrangbæk 2007).

4.4. Decentralisation and fiscal federalism

Designating selected aspects of health care purchasing or production to the public sector inescapably leads to the question of what structures should be charged with the responsibility. The relevance of the question stems from the fact that some public authorities may be better positioned than others to carry out the tasks. Because objectives, capacities and information assets differ between levels of government and across agencies, sub-national governments,

quasi-government establishments, or provider organisations themselves may be better positioned and incentivised to perform some of the public sector functions.

The literature typically recognises three forms of decentralisation (Vrangbæk 2007). Delegation transfers responsibilities within the organisational structure; de-concentration involves a transfer of tasks to another level of administration; finally, devolution relates to shifting responsibilities from central to territorial levels of government, which are subject to independent political processes. Additionally, a fourth mode is added to this classification: privatisation, which concerns a transfer of competencies between the public and private sectors. The latter is qualitatively distinct in that the first three forms are contained within the public sphere, while privatisation, by definition, goes beyond that.

While the transformation of the hospital sector in CEE/CIS has involved all four means for decentralisation, the nature of processes described in Chapter 3 shows the significance of changes taking place within the public system, and the relatively negligible reliance on privatisation. A number of difficulties surrounding decentralisation have obscured the change that has taken place in the hospital environment. The main difficulties concern distinguishing a meaningful from a nominal change, describing its actual scope, distinguishing between the forms of decentralisation as well as predicting and measuring its consequences. Still, there are reasons to think that decentralisation, and devolution in particular, may considerably alter the ways decisions are made within the health sector. This is not least because of the public health sector materiality: even allowing for small effects on resource allocation, the sheer extent of state intervention would magnify its overall impacts into prominence.

The decentralisation context has strong implications for HCS governance. Smith et al. (2012) review HCS leadership in six high income European countries and Australia, looking at three defining aspects of governance: priority setting, performance monitoring and accountability. In all three dimensions they report a substantial variation in the governance arrangements, despite a shared understanding of broad health system goals and some commonly accepted mechanisms, such as case-mix payments conveying economic incentives, performance monitoring driven by information technology, and cost-effectiveness analysis being a widely regarded operational criterion for priority setting (although rarely given the highest priority). The overview of governing bodies shows how differently governance competencies can be distributed between central health departments, councils and committees, quasi-independent agencies, regional, county and local health authorities, as well as medical associations. The greatest decentralisation-related diversity appears in the function of accountability, and is somewhat lower in the area of priority setting that for the most part is a central prerogative. In a similar manner, decentralisation in CEE/CIS has been affecting HCS governance, and likewise

priority setting remained largely with the central authorities, while performance monitoring and accountability has in many countries been de-concentrated or devolved.

4.4.1. Arguments in favour of decentralisation

Other than moral presumptions granting communities the right to govern their interests, there are a number of technical arguments in support of the local decision-maker being better suited towards economic efficiency. These arguments revolve around "the benefit rule", which sees the proximity to point of service of resource allocation as advantageous for technical and allocative efficiency. More specifically, there are four groups of reasons in support of economic systems' decentralisation (Levaggi & Smith 2005).

For one, territorial governments are better suited for provision of local public goods because they are in the position of informational advantage. This primarily refers to the knowledge of costs corresponding to possible actions, including the awareness of prohibitive costs that would render certain projects unfeasible. They can be expected to have a better understanding of local assets, and are in place to use both formal and informal networks for communication, influencing and coordination of these assets. Moreover, local authorities are arguably better informed about local preferences and needs, which stems not only from a closer organisational distance from the affairs, but also from the fact that they are typically elected by the community and thus act in accord with their supporters' preferences. This relates to the second area of argumentation – political representation. In a situation where national and local preferences do not align, decentralised governance allows the elicitation of the two sets of expectations separately. The local democratic process also allows citizens to hold public officials accountable for particular decisions affecting the community, potentially increasing their responsiveness.

Thirdly, decentralised decision-making is supposed to provide better internal incentives, because public officials decide upon affairs that may affect them personally. Further, they may be more aware and sensitive to local issues of equity. Additionally, in decentralised systems costs and benefits of public good provision tend to be more closely tied, that is, a higher portion of costs accrues to the beneficiaries. This should result in greater cost awareness, leading to greater economic efficiency of provision. Fourthly, decentralisation creates space for innovation through experimentation and spillover of best practices. This typically happens under yardstick competition, which involves benchmarking over centrally set indicators.

Thus, apart from improving technical and allocative efficiency, decentralisation may serve a number of other purposes (Bankauskaite & Saltman 2007). These may include empowering local governments (active local participation, heightened skills), increasing the innovation of service delivery (experimentation, adaptation to local conditions), increasing accountability (public participation, transforming the role central government), increasing quality of health

services (integration of services, improved information systems, better access for vulnerable groups), and increasing equity (recognising local needs, enabling local organizations, redirecting resources towards marginalized regions and groups through cross-subsidies).

4.4.2. Arguments in favour of centralisation

Yet, a number of reasons can be devised against decentralisation, or in support of (re)centralisation within economic systems. Some of the reasons are "the other side of the coin" of the abovementioned arguments supporting decentralisation. The informational advantage of lower-level governments may lead to moral hazard in the principal-agent relationships between layers of government, leading to strategic behaviour in obtaining central government grants which are intended to compensate for external effects or provide resource equalisation between areas. The motivation coming from a personal stake in local provision, if taken to the extreme, may turn into protecting personal interests and seeking prestige rather than public benefit. Another argument arises out of adverse effects that may arise as a result of local governments' competition. For example, tax competition may lead to underprovision of public goods. Moreover, tax exporting (to non-residents and businesses) can distort the equilibrium quantity of a public good, by lowering the marginal cost of provision falling on the residents. Decentralisation may also give rise to financial pressures that result in risk selection, e.g. discouraging "costly" individuals from immigration. A number of indirect cream-skimming methods have also been identified at the local level: setting low priority for certain medical specialisations, creating access barriers, reporting poor outcomes and underreporting achievements. Furthermore, it can be argued that reaping the benefits of yardstick competition and innovation does not require devolution of powers. Instead, it can be achieved through delegation/de-concentration within national structures. This approach has been employed in the British National Health Service, for instance.

Other economic counterarguments to decentralisation include forgone economies of scale, transaction costs of decentralised systems' operation and coordination, as well as the presence of externalities that need to be internalised at higher levels of government to ensure that the optimal quantity and quality of public goods are provided. Moreover, because of the regional variation in resources and capacity, national equity goals may be compromised in decentralised systems unless an equalisation mechanism is in place that does not blunt incentives for innovation. This problem is more likely to appear when local areas are small, mandatory provision is extensive, or the budgetary mechanism is faulty. Moreover, it is debatable how much diversity is desired in insurance coverage and provision of health care, as diversity tends to benefit mobile patients. Finally, coordination at the national level may be necessary to neutralise the adverse effects of macroeconomic shocks, the cyclical nature of economic activity, and local government debt accumulation.

4.4.3. The need for a balance

As illustrated by both the above discussion and the previously presented simple model of diminishing marginal net benefits (Figure 4.1), a successful public health sector strategy should aim at striking a balance between the central government and sub-national governments' participation. The need for balancing out various influences over the system may explain waves of decentralisation and re-centralisation observable in some industrialised countries (Magnussen et al. 2007). Similarly, despite an overall outward tendency in CEE HCSs, by the early 2000s some recentralisation adjustments took place in most countries (instances of Estonia, Hungary, Latvia, Poland, and Slovakia). Reasons for this, laid out in Chapter 3.9 (misalignment of authority and responsibility, inadequate managerial capacity, widening regional inequalities) necessitated a greater coordinative presence of the central government.

In principle, the role for the central government relates to four areas that have the potential to influence the efficiency outcome (Jha 1998). Firstly, there are issues of internal common markets relating to limitations to the flow of goods, services, or labour. Certain naturally existing (e.g. language) or imposed (e.g. trade barriers) may inhibit allocative efficiency of the system. Secondly, many public goods and externalities are of local nature and are best provided by an authority at the appropriate level. The nature of health care as a local public good is implied by varying intensity of altruistic preferences leading to uneven desired levels of cross-subsidy. Thirdly, inter-regional spillovers may lead to under- or overprovision of a global public good. In the case of health care, this links to public health, research and training. In principle, the greater the proportion of benefits or costs accrued by non-residents, the stronger the case for an internalising intervention at a higher level of government. Fourthly, there is a need for tax harmonisation across regions, as uncoordinated taxation may lead to allocation decisions of decreased efficiency.

4.4.4. Fiscal and "non-fiscal" federalism in health care

Admittedly, the discussion of decentralisation has for the most part been focused on fiscal powers, in the context of multiple layers of government in the Paretian economic efficiency framework, aimed at achieving locally optimal provision of public goods through taxation and government grants (Oates 1972, Oates 1999, Oates 2005). The problems of fiscal federalism have marked the health policy debate, both in normative (e.g. Warner 1975, Mashaw 1995) and positive (e.g. Robalino et al. 2001, Crivelli et al. 2006) terms. Moreover, decentralisation of expenditure or tax revenue is sometimes assumed a proxy for local autonomy (e.g. Barankay & Lockwood 2007). This approach has several limitations, however, as decisions about local budgets may as well be made at a central level; in the UK and Spain half of local health care expenditure is based on a central government mandate and should not count as decentralised (Costa-i-Font 2012).

More importantly for this study, the influence over the HCS operation goes beyond allocation of budgets. The governance arrangement may be a key factor determining managerial practices, diligence in budget spending, priorities, the room for innovation, the response to the national policy goals, and so forth. These non-fiscal functions are central to the analysis of leadership and governance in the above-mentioned paper by Smith et al. (2012). Furthermore, Wismar & Busse (2002) show the significance of non-fiscal forms of impact on the HCS, ranging from priority setting, responsibility for implementation, and various forms of compliance and accountability mechanisms. They consider two dimensions (technocratic—participative, top-up—bottom-down) to illustrate how various stakeholders (government, quasi-independent, and non-government) contribute to the shaping of national health programmes in 15 countries, autonomies and organisations. In a broader context, OECD (2002) presents a landscape of agencies, authorities and other government bodies in nine industrialised countries. A variety of non-central bodies is a response to an increasingly complex decision environment, with the aim of achieving higher effectiveness, efficiency, legitimacy and expertise of public decision-making. Agents perform a wide variety of functions on behalf of the government, which include but are not limited to financial allocation. In particular, they may supply, regulate, own, direct or supervise, thus participating in the market or moulding behaviours of other sector participants.

The concept underlying the delegation from the central government to its agents is that the latter will perform the functions differently than the government would have, presumably enabling higher performance. Therefore, the reasoning behind fiscal federalism, that is, the efficiency merits of decentralisation, the need to balance central and non-central prerogatives, and the necessity for coordination, applies to non-fiscal functions pari passu.

4.4.5. Ambiguities surrounding decentralisation processes

Despite the clarity of the basic theoretical arguments and definitions, decentralisation is difficult to describe and measure in practical terms. The difficulty is strongly marked in health care, given its high complexity of interactions between political, public authority, commercial, professional and private actors, who represent regulatory and stewardship institutions, medical care providers and their owners, third party financing institutions including sponsors and insurers, and interest groups such as the health workforce, patients and others. Decisions made within the HCS, from clinical management and quality of services to financing, regulation and setting sector priorities, are outcomes of these complex dynamics. It is the system complexity that makes analyses of decentralisation knotty, both in a positive and a normative sense. This is further complicated by internal structures and processes that determine stakeholders' behaviours, a possibility of divergence between nominal and actual scope and strength of authority, as well as the fact that the alignment of power and responsibility is often problematic.

Levaggi and Smith (2005) present a number of other considerations. For one, there are issues on moral hazard, both on the side of central (favourable bias towards pivotal electoral areas) and sub-national (extracting grants, free-riding) government. The latter also relates to the possibility of local collusion between powerful monopolistic providers and captured purchasers. Secondly, an essential question is whether internalisation should be achieved through centralised coordination or norms and standards. Thirdly, excessive costs of provision may result from both inefficiency and high external demand, and it is not always possible to distinguish between the two causes. Fourthly, if priorities for health care were to be determined locally and placed outside of the government control, they could be captured by interest groups and thus undermine the benefits to the community. Fifthly, there is ambiguity in economic evidence regarding the relevance of economies of scale in health care provision as well as about the extent of innovation as an outcome of decentralisation.

Yet, also at the conceptual level there are ambiguities. Some scholars argue that in principle there is no reason why national government could not differentiate the supply of a public good to achieve optimality at the local level. A number of devices could be used to ensure local satisfaction, for example, extracting local preferences though opinion polling, delegating the responsibility to local branches of centralised institution, or outsourcing the task of provision. Therefore, the claims of superiority of territorial governments in managing local affairs are arbitrary judgements rather than established facts and often expressed by economists who dislike government interference (Jha 1998). In addition, limitations of centralised systems may diminish with economic development, weakening the case for decentralisation in industrialised countries with sound governance (Robalino et al. 2001). The latter argument may also be substantiated by technological progress that facilitates public participation in centrally initiated programmes. De Vries (2000) rebuts theoretical deliberations for both de- and re-centralisation as unconvincing: Any political setting has the potential for equity, efficiency, and effectiveness, and whether the potential will be realised cannot be settled on theoretical grounds. Moreover, he revisits the pro and contra views of decentralisation and verifies them against reform experience in four industrialised countries. The picture emerging from the policy debate is that the same arguments of economic efficiency, equity and democratic control are raised in support of decentralisation and re-centralisation, opportunistically used for the purpose of power bargaining.

A final point coming forth from theoretical works is that decentralisation is a highly context-specific process (Magnussen et al. 2007, Bremner 2011). There are a vast number of parameters that influence its outcomes, some of which are the number and type of agents, the extent of discretion, accountability mechanisms, relationships between parallel authorities, their geographic distribution, decisions that are and are not subject to transfer, industrial organisation, and contract flexibility. In particular, the presence of technical efficiency and information

advantages, being potential sources of improved allocative efficiency, may be countered by the lack of know-how and the limited capacity of human resources, task complexity, or plain negligence. Considering the above, rather than having inherent merits, decentralisation and its outcomes hinge on the setting, which makes it difficult to reach prescriptive conclusions. Especially in health care, as the nature of tasks and technologies varies across projects and interventions, optimal structures may differ from case to case. Thus, the optimal extent of decentralisation cannot be determined on purely theoretical grounds, and instead requires empirical support contextualised for project parameters, the institutional setting and comparative developments.

4.4.6. Post-communist experiences with decentralisation in health care

Health care transition in CEE/CIS has attracted the attention of decentralisation scholars, because of its unique starting point characterised by the highest degree of centralisation as well as a number of system redesign experiments that have taken place in this context. Among the aspects of decentralisation documented in the literature are financing-side elements of HCSs, spanning across revenue collection, pooling and purchasing (Kutzin et al. 2010a) as well as privatisation in primary and outpatient care (Rechel & McKee 2009).

A number of theoretical predictions discussed in this chapter apply directly to Eastern European HCSs. Jakab et al (2003) reflect that increasing autonomy best serves the countries that are advanced in reforming their economies. Legal certainty, managerial capacity and the containment of corruption synergise with greater autonomy of health care facilities and allow reaping the benefits of efficiency and responsiveness. Conversely, low and middle income countries, i.e. those at the stage of mobilising resources and building capacity, are likely better off in relying on a centralised management. This argument is also supported by McKee (2004), who observes that major capacity restructuring is facilitated by centralised ownership and management, while being a more complex task in diverse and mixed systems.

Many of the risks and limitations of decentralisation pointed out by Bankauskaite and Saltman (2007) have materialised in reform experiments that took place over the last two decades in Eastern Europe. Some of the challenges were the need to customise strategies towards local conditions and objectives, tensions between government levels, unclear concepts and goals of local participation, unclearly defined accountability, improving within-unit equity at the expense of equity between administrative units, and dependence of outcomes on incentives faced by managers. Poor planning often implied not taking the above into consideration, and led to negative outcomes. Additionally, decentralisation reforms did not improve health outcomes because they failed to address the root of the problem – persistent shortages that were the cause of long wait times and inadequate medical inputs (Leven 2005). Importantly, repeated re-balancing moves and related back-and-forth shifts of power do not exclusively reflect the lack

of experience or mistakes in structural HCS design in Eastern Europe. For example, mature Nordic democracies adjusted the organisation of their systems in parallel to CEE/CIS, pointing to the recurring nature of the process (Saltman & Vrangbæk 2007).

Institutional capacity at the territorial level is an essential precondition for the success of decentralisation that played a major role in CEE/CIS success and failure. Inadequate competency of local decision-makers has been used as an explanation of failed reforms in Former Soviet Republics (Østergren et al. 2007). Another crucial element is the need for the central government leadership, oversight and coordination of local developments, which should nonetheless be carried out without interfering with decision-making processes or restricting the autonomy. This prerequisite, emphasised by Robalino et al. (2001), has been rarely sufficiently met in post-communist countries. Finally, Smith & Häkkinen (2007) indicate that one salient challenge of decentralisation efforts in CEE/CIS has been the lack of information infrastructure. Following decentralisation, the cost of data collection and its quality would often be disadvantageous compared to the top-down system. Resulting fragmentation and incompleteness of information assets would hinder independent decision-making on one hand and disallow system-level adjustments on the other.

4.5. Ownership and legal forms of public hospitals

4.5.1. Matters of hospital ownership

This section connects to the previous one by observing that system-wide de-concentration and devolution have had implications for distributed system stakeholders, in particular affecting hospital autonomy and governance. In fact, autonomisation was one of the mechanisms through which decentralisation has been carried out. This process has the potential to change a range of hospital behaviours, including explicit and implicit objectives, policies and practices, the scope for risk taking and willingness to provide uncompensated services, the response to external economic incentives, and so forth. Thus, subsequent pages summarise theoretical frameworks relevant for transition at the level of a hospital unit, reviewing potential sources, means and consequences of this change.

One way of understanding the evolution of hospitals in Eastern Europe is through envisaging their internal environment and the incentives it conveys. This is in contrast to the external environment and incentives, which include health needs of the population, market conditions, provider payment mechanisms, and sector regulation. The latter two have dominated the debate of the CEE/CIS hospital sector and underwent some radical reform, including but not limited to the introduction of contract-based relations with payers subject to rules set by the government. Importantly, internal incentives complement external incentives (financial or otherwise) in providing a whole picture of economic driving forces. The complete set of determinants of

hospital behaviour thus encompasses provider payments and market pressures, both traditionally in the focus of economists' attention, as well as governance. In CEE/CIS, the three areas came to relevance at the point of decomposing the integrated, hierarchical model of health care financing and provision.

Ownership, which is one of the defining elements of governance, has been showing a growing complexity of classifications, as far as European hospitals are concerned. The hospital landscape in Europe, traditionally following a public-private divide, recently has been bearing more resemblance to the diversified US market. Saltman (2003) discusses this as a process of blurring public-private boundaries and puts forward a taxonomy comprising (1) public and state (MoH, National Boards), (2) public and non-state (territorial government, public corporations), (3) private and not-for-profit (community, charitable, religious, non-governmental organisations), (4) private and for-profit (local business, corporation). In a similar vein, Atun (2007) enumerates alternatives to the strategy of transformation by privatisation: contracting out or outsourcing, "hybrid organisations" that remain in the public sector but have many private sector characteristics, as well as public-private partnerships – strategic alliances for designing, building, financing and operating assets formerly belonging to the public sector.

The usual assumptions of economic analysis posit that providers respond to financial incentives in a way that enables them to maximise their objectives given the constraints under which they operate. Can the conventional neoclassical model accommodate a role for provider ownership? One parameter that likely depends on ownership is the specification of the maximand. Public, private and mixed ownership providers operate towards different sets of objectives, the crudest distinction being for-profit and not-for-profit, the latter allowing for a number of further goals such as quality or equity. Secondly, even supposing that providers are equally responsive to economic incentives, the ways that providers go about achieving their objectives may vary between provider types. This basically takes the form of additional resources or constraints imposed on their operation. Public owning bodies may introduce stricter than market regulation rules regarding quality, medical practices, available or preferred procedures, and risk taking. Such restrictions may lead to lower flexibility and less innovation. Employee privileges and unionisation can also contribute to the differences in organisational behaviour and outcomes. Furthermore, not-for-profit and government organisations may benefit from special treatment, such as tax advantages and eligibility for donations, or a preferential consideration leading to an uneven playing ground between various types of ownership. The latter is an issue particularly relevant in CEE/CIS, where public hospitals are usually prioritised in contracting with public payers as well as enjoying other forms of legal and economic protection.

There is a wealth of evidence in the health economics literature that supports the existence of intrinsic differentiating characteristics of ownership types. Comprehensive reviews are

frequently published in dedicated studies, and attempting to produce another compilation would be outside the scope of this thesis. For the sake of the illustration of the volume and variety, it is worth saying that the comparative evidence encompasses cost per outcome (e.g. Sloan et al. 2001), quality (Pham et al. (2011), the risk of market exit given inefficient operation (Deily et al. 2000), implications of for-profit hospitals for medical productivity (Kessler & McClellan 2001), determinants of profitability (Gapenski et al. 1993), treatment choices (Bayindir 2012), and effects of privatisation (Tiemann & Schreyogg 2012). In Eastern Europe, Procházková & Šťastná (2011) estimate the cost efficiency of 99 teaching, not-for-profit and for-profit hospitals in the Czech Republic. Moreover, there are meta-studies that collect and often statistically analyse outcomes of individual studies, e.g., Tiemann et al. (2012) compile 20 papers on hospital efficiency, Eggleston et al. (2008) identify 31 studies of the relationship between ownership and quality between 1990 and 2007 in the US alone. The latter study finds that outcomes of individual studies are sensitive to the institutional context and may not be generalisable. Similar conclusions are reached by Busse et al. (2002) regarding the implications of enhanced autonomy and entrepreneurship for efficiency, equity, quality and responsiveness. The mixed evidence suggests that various ownership forms have their context-dependent pros and cons, which justifies their coexistence. Indeed, an option overarchingly inferior would be dominated by other choices and eventually eliminated from the market. Neither does the mixed evidence preclude the possibility of improving performance within a given type or by changing to another.

Privatisation provides a conceptually convenient, clear-cut case of autonomisation. Exemplifying an extreme of the decentralisation spectrum, privatisation altogether removes the hospital from the public sphere. It furnishes a good starting point for the consideration of the case for and nature of intermediate, mixed forms of ownership. Since basic economic models are based on the assumption of profit-seeking, one way to look at not-for-profit and public hospitals is through the lens of differences from the for-profit model. The relevance of private hospitals also stems from the fact that they come in a for-profit and not-for-profit variety that has been argued to have distinct properties in terms of performance and priorities. This potentially positions the not-for-profit profile closer to behaviour that is expected from public hospitals, as far as social goals are concerned. Moreover, not-for-profits by definition pursue goals other than profit and allow no private residual claims (Sloan 2000).

Problematically, in a private for-profit hospital sector, innovation may involve strategic behaviours such as focusing on profitable pathways, selection of patients, and shifting complex clinical cases to the public system. This short-term profit orientation, among other reasons, has led to greater trust in, and market dominance by, not-for-profit forms. Nonetheless, the private for-profit sector offers many insights for all forms of hospital ownership. It has been credited with some good practices in corporate governance that have inspired public sector management

reform. It also puts to a test the quality and integrity of the legal framework and health sector regulation, by removing the hospital from public control or supervision that could influence the hospital behaviour towards being more benevolent than explicitly permitted. Moreover, it has been argued and shown that not-for-profit hospitals may mimic the more aggressive behaviour of their for-profit counterparts (Duggan 2002).

The concepts of privatisation and private hospital apply in Eastern Europe directly and indirectly. Speaking of private hospitals per se, this form of ownership has not become prominent in CEE/CIS and only minimally contributes to hospital care provision in the region (Busse et al. 2002). The share of private beds in all hospital beds in 2009 was 5.9% in CEE and 3% in CIS, compared to the EU average of 36.2% (WHO HFA-DB). That being said, there are exceptions: Georgia, where private ownership is dominant, as well as the Czech Republic (14.2%), Bulgaria (11.4%) and Estonia (9.7%). Moreover, increasing private ownership represents a feasible and likely alternative to maintaining the status quo in the sector as well as a logical continuation of governance trends observable throughout health care transition. In the process of shifting hospital ownership, private, for-profit and not-for-profit options will compete against hybrid public models. Furthermore, considering broader influences, when faced with a more dynamic environment in the 1990s, Eastern European physicians and health care managers became more aware of budgets, costs, and technical efficiency. These attitudes and skills, not without resemblance to the private sector practices, are essential for the adaptation of the predominantly public hospital sector (Réthelyi et al. 2001). This is true in the light of the health care transformation depicted in Chapter 3: growing reliance on market forces and the private sector, and governance change that enables a more explicit influence of physicians and directors over objectives pursued by individual hospitals.

4.5.2. Autonomy and governance of public hospitals

In post-Semashko health systems, various extents of public hospital autonomy were aimed at replicating some private sector conditions without forgoing public control over health establishments. The autonomisation process encompassed growing roles of territorial governments (as managing or founding bodies) as well as hospital-based decision-makers (chief physicians, directors). This was accompanied by shifting some of regulatory and supervisory prerogatives to independent agencies, professional associations, and other stakeholders. The trend has been in line with a recommendation by Kornai and Eggleston (2001b) that ownership rights and responsibilities of organisations that remain in the public sphere after a desired extent of privatisation ought to be divided between central government, regional governments, hospitals, and other health sector organisations. This is equivalent to decentralisation, inclusion and pluralisation, as discussed in the previous section.

The starting point for hospitals in the region was the status of budgetary organisations participating in a top-down bureaucratic administration. Autonomisation is a concept of departing from the hierarchical structure by broadening the scope of managers' areas of responsibility and decision-making, with the purpose of improving their performance. An autonomous hospital is at least partially self-governing, self-directing, or self-financing, which indicates a multi-dimensional and gradual nature of autonomy. Chawla et al. (1996) propose a framework for assessing hospital independence that comprises a health dimension (overall and specific goals) and a managerial dimension (strategic management, day-to-day administration, procurement, financial management, human resources). In practice, autonomisation is carried out in a wide variety of ways, usually within an existing structure of ownership, albeit with a possible change of legal form (e.g. from a public establishment to a government agency). New prerogatives may include a performance-based assessment, capacity to shift funds between budget items, deciding about hospital inputs and retaining budgetary surpluses (Busse et al. 2002). Increases in autonomy coincide with a greater recognition of the fact that hospitals need to form networks with private health care providers, other hospitals, and seek continuity of care in the community (Edwards et al. 2004).

Corporatisation takes these changes further and follows a more specifically defined concept. In particular, this form is less variable with respect to the criteria of self-governing, self-directing and self-financing. A corporatised hospital is accountable to its public owner, but the governing body has full control over inputs and production processes, full responsibility for performance, usually retains extra revenue, is less likely to be funded by budget and more likely by contract, and faces the risk of insolvency and market exit. Corporatisation removes the unit from the hierarchical structure, and is consequently less easily reversed than autonomisation (Busse et al. 2002). In CEE/CIS, corporatisation typically coincides with or is a consequence of devolution of ownership to territorial governments. This concurrent change in ownership and accountability can be expected to have implications for objectives and the means for their achievement. Corporatised hospitals, depending on the preferences of their owning bodies and internal decision factors, may put emphasis on accessibility, equity, quality, or health outcomes, including subsidisation of services unprofitable but required for socially important reasons. At the same time, stricter accountability will shift the focus to financial sustainability (if not profitability), in response to owners' expectations conveyed to hospital staff through risks and rewards. In practice, outcomes may vary due to bargaining powers and skills of various stakeholders. Moreover, corporatisation implies a shift in the responsibility for capital investments and depreciation costs, as well as liability for medical errors, although this latter aspect remains underdeveloped in all post-communist countries. It also has consequences for the opportunity for public property protectionism, which is markedly restricted in the case of commercial law companies. Finally, a by-product of transforming hospitals into joint-stock companies is attaining legally required accounting standards and thus improving information

systems, which are both needed for the purposes of performance monitoring and are helpful in making allocation decisions.

The experiences of CEE/CIS transition identified in Chapter 3 are in line with four broad classes of governance: budgetary, autonomised, corporatised, and privatised (Harding & Preker 2003). In the model of governance transition (Figure 3.1), the budgetary status fits in Stage 1 (and possibly 2), the autonomised status in Stage 3 (with possible preliminary developments in Stage 2). Corporatised and privatised hospitals correspond to the two last stages, which were named accordingly.

Autonomisation has inevitable implications for hospital governance, which changes from direct management to leadership, supervision and other "soft" influences. Harding and Preker (2003) define three areas of good governance: (1) Objectives – clearly defined, mutually aligned, narrow in scope and achievable; (2) Supervisory structure – independent, professional, transparent, and focused on performance rather than inputs; and (3) Exposure to markets for hospital services as well as to markets for capital, supplies, labour and products. Ditzel et al. (2006) in a comparative assessment of hospital governance in the Czech Republic identify the following key features: governing bodies, membership and appointment of governing bodies, board member remuneration, setting service delivery and financial targets, accountability of governing body, competencies and accountability of hospital director, and controlling body. Smith et al. (2012), in discussing hospital governance, recognise the functions of priority setting, performance monitoring and accountability, as well as various public agencies responsible for performing these functions.

The main practical obstacles in setting up good governance are continued politicisation of decision-making, the lack of transparency in government interventions as well as the failure to make social functions explicit. Reasons behind these failures include conflicting stakeholders' interests and painful trade-offs that are revealed but not confronted in the process of specifying and prioritising objectives. Further impediments are generated by the preference of bureaucratic structures for direct control, and their inertia and unwillingness to adopt more efficient practices (Harding & Preker 2003). This may be accentuated when the practices are more complex and demand the acquisition of new skills or create additional tasks, e.g. contracting, monitoring, reporting. Finally, change is strongly resisted when it monitors performance rather than inputs or attempts to make services more systematic by reducing variations in practice (Edwards et al. 2004).

One of the prominent problems of hospital governance in CEE/CIS has been the "soft budget constraint". The concept originated from the lack of financial discipline in the socialist economy, but in a number of forms it can also be found in regulated market economies (Kornai 1998). A soft budget constraint materialises when adequate rewards and penalties are absent, in

an organisational culture that does not promote prudentiality and thriftiness, and under an expectation of government support. The latter may take the forms of (1) fiscal means (subsidies, tax concessions), (2) crediting (preferential bank credit, trade credit, wage arrears), and (3) indirect support (protection from competition through tariff barriers, restriction on imports, preferential administrative or legal treatment) (Kornai 2001, Kornai et al. 2003). The government assistance virtually eliminates the risk of market exit, posing significant challenges for effective governance. Repeated instances of government support lead to an expectation of further help. For example, in Hungary and Poland the central governments bailed out indebted hospitals owned by sub-national governments. This, however, did not prevent debt from reoccurring. In fact, improving financial discipline by eradicating an ingrained anticipation of a government intervention is a lengthy process. It requires building a track record of strict adherence to rules and preparing alternative legal and economic mechanisms to prevent adverse consequences of hardened accountability, such as bankruptcies caused by external conditions (Kornai 1996).

As the above example illustrates, a budget constraint cannot be hardened by shifting ownership from central to territorial governments alone. Looking beyond Eastern Europe, in Italy and Norway instances of both centralisation and decentralisation led to overspending (Kornai 2009). This is because the problem is deeply embedded in the nature of public ownership. The behaviour of non-governmental establishments considerably differs in this respect, with private for-profit organisations showing the highest level of budget discipline. Yet, even a for-profit structure of the hospital sector does not preclude the possibility of a public bailout, for example when a private hospital enjoys a monopolistic position or its managers can anticipate or encourage government help through informal connections.

While Kornai does not support an "unlimited free market privatisation", he argues that the advantages of financial discipline are an argument in favour of a greater presence of private capital or management in the hospital sector. For the same reason, he opines that irrespective of their ownership type hospitals should compete for patients, monopolistic power should be diminished and the threat of exit should be real. With respect to the legal and ownership forms discussed previously in this section, and in particular considering the inconclusiveness and reversibility of approaches to autonomisation, corporatisation offers a feasible public alternative that meets Kornai's postulates, breaks the pooling of hospitals, and has the potential to effectively harden the budget constraint.

4.5.3. Corporatisation and New Public Management

In the case of the hospital sector, common performance issues concern technical and allocative efficiency, poor responsiveness and the failure to reach poverty groups. Thus, re-organisation of public hospitals should aim at improving efficiency and outcomes through a better utilisation of

resources and new care pathways, as well as at improving patient satisfaction and reduce staff turnover (Edwards et al. 2004).

New Public Management is a term coined by Hood (1991) for a public sector strategy that modifies the internal and external environment of an organisation in order to create more space for innovation and promote higher performance through economic incentives and market pressures. Pioneered in the United Kingdom and New Zealand, it was conceived as a response to the rigidity of hierarchical bureaucracies, the lack of close management involvement in the core operations, and absence of incentives (Harding & Preker 2003) that suffocated public sector performance. Corporatisation is one organisational pillars of NPM, alongside increased accountability in personnel performance management, performance-related budgeting, autonomous agencies, managed competition and contracting (Shaw 2004).

The strategy of New Public Management gives rise to entrepreneurial hospitals. Busse et al. (2002) argue for a distinctive European model of social entrepreneurship which governments across Europe are trying to promote. Departing from public good provision based on bureaucratic structures or professional groups, this model introduces private-sector principles of innovation, opportunity-seeking, client orientation and taking commercial risks. Four pillars this model is based on are trust, transparency and public accountability, supervision and entrepreneurial skills. Regulating entrepreneurial behaviour in hospitals involves ex ante (planning) or ex post (review) approaches to setting hospital capacity and imposing restrictions on retaining budget surpluses, borrowing capital from the financial sector, selling assets, engaging non-core activities, acquisitioning or merging with other hospitals and health care establishments (nursing homes, ambulance services), as well as outsourcing (Busse et al. 2002).

Altering the hospital sector according to the NPM principles is subject to a number of preconditions and caveats enumerated by Jakab et al. (2002b). Firstly, marketisation reforms may achieve certain objectives at the expense of others. A common trade-off involves improved efficiency and responsiveness going hand in hand with higher access inequalities and a lower level of financial protection. To avoid unwanted sacrifices, competing goals have to be made explicit and subsequently monitored. Moreover, governments in developing countries have a track record of taking for granted various positive by-products of market reforms, e.g. reduction of fiscal costs, emphasising primary care or rationalising hospital capacity. Experience shows that such secondary positive effects are unlikely to occur unless specifically targeted. Secondly, introducing market discipline implies that the market will provide incentives both in the form of rewards and penalties. The latter may not be politically acceptable, which leads to political interference and undermines market operation. Thirdly, capacity building is essential in countries where institutions and resources are insufficient to meet the transition costs and expertise requirements of autonomisation and marketisation. The presence of corruption in the

public sphere especially requires additional safeguarding mechanisms. Fourthly, intentions underlying autnomisation may include lessening the fiscal burden or political pressures. Decentralising a financially constrained hospital sector without providing alternative financial mechanisms and ensuring accountability is likely to weaken the functions of social, financial and health protection. By the same token, formalising informal payments and enabling hospitals to raise additional revenues may lead to better transparency, quality and staff retention. Fifth, a typical autonomisation scenario allows hospitals to retain extra revenue and control of medical supplies, maintains central control of staffing and investment, and establishes supervision that is weak or limited to controlling board members. This limits the opportunities to rationalise hospital capacity and leads to recurring debt and neglecting social functions in result of poor accountability. Finally, as Jakab et al. conclude based on a number of reviewed cases, in countries with poorly performing centralised public hospital sector, substantial performance improvements of efficiency and quality can be achieved by relatively simple reforms of incentive environment of hospital management. However, due to diminishing returns, such efficiency-oriented reforms have little or no incremental effect in the systems that are stable, well-resourced and well-managed.

Despite its potential for enhancing efficiency, introducing NPM practices encounters substantial barriers to effective implementation. Barriers such as accountability deficiencies, corruption and rent-seeking as well as ineffective public sector practices are pronounced in Eastern Europe, although the situation has been gradually improving in the course of transition (Nemec et al. 2008). Political interference is a deeply rooted problem across the region, in unreformed and reformed systems alike. Jakab et al. (2002a) review hospital director appointment procedures in nine post-communist countries. Predominantly, directors are appointed based on political criteria of party affiliations, local interests and personal networks: by the Minister (Albania, Georgia), local government represented by assembly or mayor (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland). Only in the cases where hospitals take the legal form of joint-stock companies (Estonia, Latvia) directors are employed by respective boards of directors. While this form is by no means free from cronyism, it is more than others likely to rely on meritocratic criteria. With corporatised hospitals increasingly present in the region, seeking for managerial qualities becomes more commonplace, to the benefit of the quality of public sector performance.

4.6. Economic models of hospital behaviour

4.6.1. Overview

From the profit-seeking, private sector organisation originated numerous economic models of hospital behaviour. These frameworks extend the neoclassical model of a firm, in some cases explaining the nature of not-for-profits and also offering lessons for public hospitals. This is

because it is conceivable that public hospital managers, as in not-for-profits, prioritise over a combination of quality, quantity, solvency, and prestige. These preferences, stifled in the hierarchy, may be revealed after hospitals are granted autonomy and their directors are given the control over inputs, processes and strategic planning. The preferences may also have been subject to change given "managerial capacity-building", often emphasised in the literature of transition, and an increasing awareness of health care economics. Moreover, in consideration of CEE/CIS developments, in public hospitals there has been growing room for influences of various lines of authority, including physicians, administrative staff and new founding bodies (owners). The three lines of authority are likely to have diverging priorities regarding such matters as objectives, risk profile, inclination towards moral hazard, and so forth. Their bargaining is likely to be central to understanding the hospital behaviour.

Economic models of hospital behaviour address many of the above problems, and while most of them were originally developed in the US context, they could be adapted to the mixed market-government environment of CEE/CIS. The models fit in the neoclassical framework and deviate from the standard profit-maximising firm by the parameters of decision-making actors and their objectives as regards resource allocation. Sloan (2000) discusses major behaviour patterns of not-for-profit hospitals by reviewing (1) a model of four internal groups of stakeholders (physicians, employees, owners, managers) bargaining over four objectives (quality, profit, labour slack, capital slack) (Zweifel & Breyer 1997); (2) a model of a mixed quality-quantity objective (Newhouse 1970); and (3) a model of a physicians' cooperative who maximise their net income (Pauly & Redisch 1973).

In addition to the above, hospitals can be seen as quantity maximising (Rice 1966) or pursuing the objective of prestige expressed by the quality of inputs (Lee 1971). Feldstein (1971) submitted a compound objective of maximising quality at any given quantity. His dynamic framework enables adjustments in quantity, quality and prices, helping to explain the hospital cost inflation. The Feldstein model could also be adapted to shed light on the problem of hospital debt accumulation in Eastern Europe. Given fixed prices or budgets, rather than cost inflation, the model could predict how physicians' philanthropic preferences, devotion to social functions and attempts to meet demand for hospital care in a resource-constrained system lead to exceeding the budget under a soft budget constraint.

Moreover, a number of researchers factor in the internal hospital structure. Buchanan and Lindsay (1970) suggest two lines of authority, physicians and managers, whose diverse preferences result in tensions or conflict, in which medical staff are likely to gain the upper hand. Clarkson (1972) focuses on differences between for-profits and not-for-profits by discussing choice constraints and internal bargaining between principals (owners) and agents (administrators). Along the line of internal bargaining, Harris (1977) develops a formal model at

the core of which is an internal market of input demands (from clinical outcomes-driven doctors) and supply (by economic outcomes-driven administrators). The hospital behaviour is thus a product of the interplay of the two forces and competing objectives. A survey of hospital models by McGuire (1985) led to the conclusion that the internal hospital structure complements the external market structure in determining actions taken by the hospital.

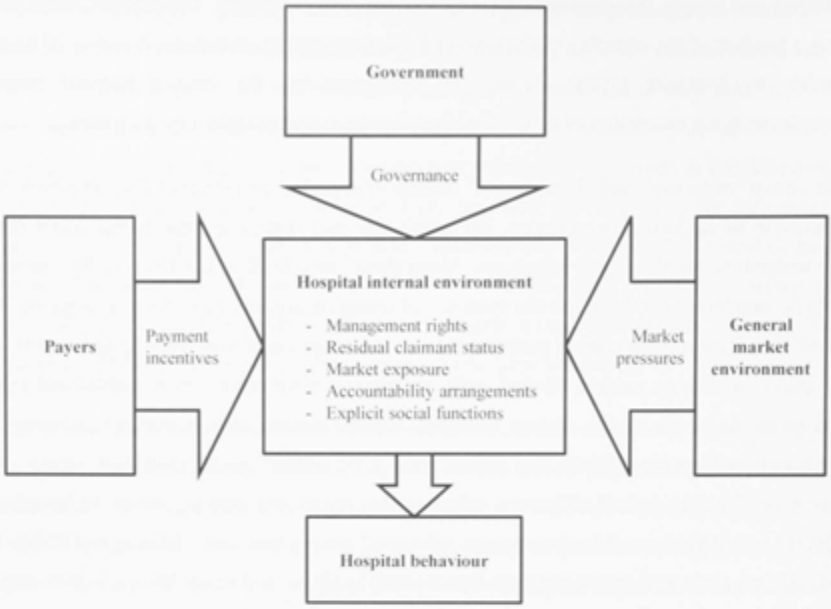
The above "organism" and "institutional" models of organisation (Jacobs 1974) set a basis for a discussion of leadership, motivation, job satisfaction and culture as aspects that could further our understanding of hospital behaviour. Along these lines, McKee and Healy (2000) assume a holistic standpoint and look into the evidence of changing hospital behaviour by targeting three areas: (a) incentives for clinical performance, i.e. inducing continuous learning and quality care by quality assurance models, clinical audit and clinical governance; (b) organisational culture and its relation with quality of care, involving various aspects such as nursing autonomy and relationships between doctors and nurses; and (c) payment mechanisms that ideally offer incentives towards desired efficiency, effectiveness, equity and quality, and avoid introducing adverse incentives in non-target areas or substantial transaction costs. McKee and Healy find that clinical performance and payment mechanisms are blunt and rather limited in their impact, while targeting organisational culture has a good potential for improvement. This is following the observations that job satisfaction is a strong predictor of nursing quality, while patient-centredness, leadership, collaboration and openness in problem solving are good predictors of intensive care outcomes. At the same time, the authors warn against externally-steered and imposed "re-engineering" of culture, which is likely to damage staff morale and work ethos. Instead, quality improvements should be achieved through a "soft", leadership-based approach to change.

4.6.2. The Harding-Preker model

Harding and Preker (2003) go beyond neoclassical economics in order to find determinants of hospital behaviour. Their synthetic approach consists of the neoclassical framework, agency theory, transaction cost economics, property rights theory and political choice theory. The outcome is a descriptive (rather than formal) model to explain the internal and external forces determining hospital behaviour and predicting its responses to efficiency-inducing reforms. The model comprises financial incentives, market structure and a governance component (Figure 4.2). The former two aspects are extrinsic to hospitals and seen as environmental parameters, while the latter internal environment is shaped by formal and informal arrangements, including ownership and legal status.

The hospital governance setup arises from five pillars: decision rights, market exposure, residual claims, accountability and social functions. Decision rights range from vertical hierarchy to autonomous management, and are focused on the areas of assets, capital and other inputs

Figure 4.2: The Harding-Preker model of hospital governance



Based on Harding & Preker (2003).

(procurement, labour), output mix and level, pricing to organised purchasers, and management processes. The actual scope of decision rights may be constrained by labour market rigidities, political pressures, or financial constraints. Market exposure refers to the share of hospital revenue that hinges on selling profitable services in the market, as opposed to direct budget setting. Market exposure is assumed to be performance-inducing. Savings generated by cost or efficiency improvements that remain for internal stakeholders' redistribution are referred to as residual claims. Benefits not accruing to the agents within the hospital, and instead confiscated by the public purse (the principal), may limit the incentive to economise. Accountability concerns the forms and strength of responsibility before the sector stakeholders: owners, purchasers, regulators, and patients. It is put in place through mechanisms such as hierarchical control, rules, regulations, and contracts as well as venues for enforcement thereof. Finally, social functions are services that bear significant economic externalities, such as health protection of the homeless, the uninsured or ethnic minorities. When implicitly bestowed with the responsibility of alleviating socio-economic inequalities, hospitals will often cross-subsidise those kinds of services, or exceed their budgets under the soft budget constraint. Consequently, formally specifying and regulating social functions requires an adequate adjustment of funding. Imposing a strong financial regime without providing additional resources will adversely affect the feasibility of this function, exposing vulnerable groups at health and financial risks.

Accounting for social functions links to the question of equity in accessing health care, and especially to the provision of uncompensated care (taken here to mean health care for which the reimbursement received by the provider is less than the cost of providing that care). Various forms of Community Service Obligations (CSOs) may be imposed by regulators to ensure the achievement of equity objectives. They may also be pursued voluntarily by organisations which have objectives other than, or in addition to, profit maximisation. A CSO requires that selected services are made available to all eligible persons even though certain services or customers may predictably generate losses. Therefore, it is a form of restricting the provider's choice of services, areas of business, or pricing policies. One way of financing services priced below their cost of delivery is through an internal cross-subsidy, supported by profitable activities. A CSO can be applied to a range of publicly owned or government-regulated private enterprises, including utilities (water, gas, and electricity), telecommunications, postal services, public transportation, as well as hospitals. Even in the lack of a CSO, both not-for-profit and for-profit hospitals have been shown to supply uncompensated care. The extent of the charitable provision has been linked to their market power, the presence of not-for-profit hospitals, the profile of clinical specialisations, the availability of slack resources, ownership type, and executive board structure and composition (Norton & Staiger 1994, Costa 2012).

In the context of health care systems in transition, carrying out social functions under stricter accounting regimes necessitates a revision of conditions for the provision uncompensated care. Both obligatory (CSO) and voluntary (charity) arrangements may be relied on in achieving equity objectives. Importantly, however, the problem of providing care to vulnerable groups should be approached in an explicit manner, with a particular consideration of mechanisms for the financing of uncompensated care (Mirabel & Poudou 2004), the role of public-private partnerships (Dixon et al. 2004), the contract design for delivering social and commercial value for money (Hensher & Houghton 2004), and broader ethical grounds for corporate social responsibility to the wider community (Leduc 2004).

The strength of the Harding-Preker model is that it provides a framework to anticipate, although not quantitatively, reactions of the hospital to compound changes in its internal and external environments. It provides a checklist for comprehensive sector change by showing how negligence of certain areas of incentive and control may undermine an otherwise well-designed reform package. In so doing, the model is a good platform for explaining deficiencies of the emergent hospital sector in CEE/CIS, with a particular focus on the issues of governance. In fact, Jakab et al. (2003) follow this logic to identify two major issues of post-communist hospital transition: the lack of capacity to reform (or to perform the functions of) the internal structure of hospitals, and the misalignment of the internal environment with external incentives of the financing-side reform. As of 2003, more specific obstacles included unclear roles of owning bodies, passive purchasing models, soft budget constraints, poor contracting

mechanisms (with regards to quality assurance and performance monitoring), poor accountability, scepticism and incompetence of the medical leaders.

Devolving hospital ownership failed to deliver expected improvements despite transferring considerable decision rights. The failure was due to the lack of recognition of other essential pillars of governance, and specifically stemmed from the absence of (market) pressures, ineffective accountability and sustaining implicit social functions. In the Czech Republic, for example, hospitals are obligated to provide a number of medical interventions despite the fact that those services are not covered by the social health insurance scheme. Consequently, the majority of hospitals regularly report financial losses (Ditzel et al. 2006). Jakab et al. (2002a) assess that, until the early 2000s, Estonia, Georgia and Kazakhstan had gone the furthest in creating a correct internal incentive environment.

4.7. Compilation of economic arguments behind changing hospital governance

This chapter has reviewed a number of areas of economic theory that apply to the transformation of hospital governance in post-Semashko health systems. It commenced by summarising economic features of the communist system itself and implications of the departure from this model. Then, it covered the cardinal arguments of decentralisation, a variety of intermediate forms between central government and private ownership, and consequences of ownership transformation, as well as economic models that help understand aspects of hospital behaviour. All these areas to some extent explain a context for making allocation decisions that emerged in CEE/CIS hospitals, as well as new incentives for performance that have fallen on various sector participants. Yet, the above frameworks are fragmentary, and the focus on specific economic questions makes them individually feasible. This is problematic because, as Chapters 3 and 4 of this current thesis have revealed, there are many levels of causes and effects in the discussion of changing hospital governance, and no single framework exists to encompass all the relevant parameters.

In light of the above observation, the framework presented in Table 4.1 is an attempt to integrate the many theoretical indications into a simple summary that would illustrate the possible overall effects of governance-related reforms on hospital performance. The compilation is intended to outline the combined direct (active powers, e.g. discretion over allocation or priorities) and indirect (passive, e.g. the reception of financial incentives) effects at the central, territorial, and hospital levels. Consequently, Table 4.1 exhibits the strength of incentives as well as the technical possibility to economise at each stage of the stepwise transformation of hospital governance. The transformation is assumed to be incremental, i.e. each stage retains or expands the incentives of the preceding stage. The indicative incentive intensities are relative within each category, that is, the ranks do not imply the relative importance of four sources of efficiency.

Table 4.1: Indicative economic efficiency potential per stage of hospital governance

Governance reform stage	Information	Innovation	Financial risk	Residual claims	Uncompensated care
Non-reform	–	–	–	–	+++
De-concentrated admin	+	+	–	–	+++
Devolved ownership	+	++	+	+	++
Corporatisation	++	+++	++	++	+
Privatisation	++	++++	+++	+++	–

Information advantages stem from decentralisation of hospital network supervision as well as improved accounting and information systems at unit level. This dimension depicts the increasing capacity to identify needs, resources and technologies for achieving higher productive and allocative efficiency. Innovation refers to the capacity or necessity to introduce new products or services or to improve existing solutions. Decentralisation, autonomisation and privatisation increase the room for experimentation and variation in practices, as well as introduce actual (market exposure) or quasi (benchmarking or yardstick) competition. The combined internal and external environments conducive to innovation can be expected to heighten quality, responsiveness, efficiency, and cost-conscientiousness. The dimension of financial risk corresponds to hardening the budget constraint by detaching hospitals from network-based pools backed by central and regional governments. This creates pressures for financial responsibility, planning and anticipation efforts, as well as the need to apply more precise accounting standards. Along the centralised—privatised spectrum, the likelihood and magnitude of a bail-out or other forms of public support in the case of insolvency are progressively lower. Residual claims concern the fact that the hospital can retain some of its extra revenues or savings from cost-containment exercises. This establishes a high-powered incentive for owners and managers to economise under both for-profit and not-for-profit settings. In the latter case, the surplus may be reinvested thus increasing quality, prestige or working conditions, all of which are valid objectives of internal participants.

Finally, the last column in Table 4.1 illustrates the fact that a higher efficiency potential achieved through hardening the budget constraint, the risk of market exit and the pursuit of profit, may dissuade hospital managers from performing social functions, which is here represented as a decreasing availability of uncompensated care. To the extent this is the case, the objectives of efficiency and equity can be seen as conflicting (that is, unless the equity dimension is factored in the efficiency outcome measure, as in Wagstaff 1991). For this reason, without an adequate counterbalancing mechanism, advancing through the governance stages may have adverse implications for equitable access to health care.

4.8. Suggestions for reform

4.8.1. General directions

From the theoretical standpoint, the transformation of governance in post-Semashko countries has had the potential to improve economic performance of hospitals. The leading countries have gone a long way in implementing the economic incentives along the lines presented in Table 4.1. Their success stories pave the way forward for less reformed systems. Still, no country has avoided mistakes in the process of transition. Economic models and theories reviewed in this Chapter offer valuable insights regarding the role of governance in a broader hospital reform.

The building blocks that constituted the Semashko system have been abandoned in most countries of the region. Nonetheless, the redefined systems continue to rely on state participation, avoiding certain problems with health care markets but bearing the costs of government failures instead. Within this still dominant public setting, decentralisation has brought new distribution of powers between levels of government. In fact, decentralisation can be argued to be the single most significant feature of post-communist health care transition, involving new institutional mechanisms for revenue collection, pooling and contract-based purchasing, predominantly performed by newly established health care financing authorities, devolution of health care provision through empowering territorial government and providers, as well as some aspects of regulation being delegated to various quasi-independent government agencies. This is, in principle, a positive development, given there is evidence that shows decentralisation in HCS can yield lower mortality rates and strengthened political rights of citizens supposedly increasing public participation and accountability. It may be especially desired in corrupted environments, through reducing the marginal pay-off of corruptive actions by increasing the number of officials who hold executive powers (Robalino et al. 2001).

This chapter also illustrates that there are economic frameworks other than decentralisation relevant to explaining the meaning of the hospital sector transition. More specifically, in some countries, there has been significant restructuring of provider ownership rights and legal forms assumed by the provider organisation. This has had implications in terms of powers to set general priorities and specific objectives, autonomous decision-making, risk bearing, introduction of new accountability mechanisms, and the inclusion of internal participants that previously were not in a position to bargain over hospital behaviour, to name a few.

A number of intermediate forms appeared between the extremes of central government and privatised ownership. Steps toward greater autonomisation seem to eventually lead to corporatisation of public providers, in line with the still-influential strategy of New Public Management. (The NPM paradigm has been claimed to be overridden by "digital-era governance" that reintegrates public provision under the central government with the aid of

digitisation of administrative processes. This promises the efficiency of centralised processes with the flexibility of local provision – Dunleavy et al. 2006.) As presented in Table 4.1, corporatisation comes with considerable advantages of information (accounting standards, managerial reporting), self-management of inputs and processes, as well as economic incentives of the internal environment. In the course of aligning costs, benefits and decision powers, corporatisation may also facilitate the containment of corruption, including informal payments and the use of public facility for private practice that take place in the context of blurred sector boundaries. Consequently, transforming public hospitals into joint-stock companies has the potential to improve their performance, subject to a number of prerequisites discussed below.

The key message emerging from this chapter is that reforms of financing and governance are in fact two sides of the same coin. Hospital resource allocation decisions result from a complex overlap of external and internal incentives, pressures and interests. Therefore, provider payment mechanisms and the internal environment ought to be seen as complementary in that both are required in order for the other one to be effective. Only a complete approach to designing an incentive environment will enable synergies between its external and internal components, directing organisational behaviour towards policy goals.

4.8.2. Three pillars of reform

This conclusion has crucial implications for strategic goals of future reforms. These should firstly involve a transformation of passive payers into active purchasers, in order to convey desired incentives through payment mechanisms. The ability of payment systems to shape provider behaviour is a well-established fact of health economics, although calibrating the system to ensure intended mixes of quantity and quality of care is itself a challenging process.

Secondly, sector governance must be crystalised through confident and clear legal provision. This encompasses the MOH undergoing a transformation into the role of "sector steward" with strong supervisory and monitoring capacities, defining key prerogatives of autonomised hospitals, clarifying the role for territorial governments as funding bodies, and furnishing organisational and legal tools for effective accountability. Decision rights, residual claims, social functions, and market exposure have to be aligned with the structure of financing, in order to make the hospital receptive and reactive to external signals. Creating such a governance environment will catalyse the desired effects of financial stimuli by making provider organisations respond accordingly. Conversely, lack of such an environment will lead to hospitals ignoring the incentives, which is reported to be the case in Russia, for example.

Phasing out the rigid central control creates room for greater flexibility, adaptability to local conditions, and quicker and better use of resources toward satisfying local needs. For these advantages to occur, the empowered managers need both the willingness and the ability to

respond appropriately. This brings us to the third pillar of a successful reform, which is ensuring the capacity of distributed managers to exercise their powers and fulfil responsibilities. The capacity in question spans from technical competencies and "people" skills to diligence in spending, abiding by health policies and regulations, and genuine concern with the well-being of the population. This pillar rests on the observation that getting the financial and governance incentives right is not a satisfactory condition for good system performance, if key players do not have the ability to understand and carry out their parts. As it clearly emerged from Chapter 3, the deficiency in managerial capacity is a common theme in countries coming from the communist background. Thus, in the context of CEE/CIS, successfully meeting this prerequisite requires raising a new managerial class that would inject a critical set of proficiencies into hospital administration. However, the oft-advised capacity-building is essential not only in post-communist but also in industrialised countries. Smith et al. (2012) review governance in seven developed countries and emphasise the need of building national, local, practitioner and citizen understanding and support of health policy efforts. A lack thereof may thwart promising initiatives.

4.8.3. Common mistakes of governance reform

In CEE/CIS transition, expectations were that changes in the external incentive environment, most prominently the introduction of performance-based payment mechanisms, would induce adjustments in hospital networks leading to increased system performance. Most reforms focused on financing aspects of health care and overlooked the importance and complexity of the internal environment and broader hospital governance. As a result, the effectiveness of contract-based activity-related payments was undermined. A simple devolution of hospital ownership did not address the structural deficiencies of the hospital sector, and thus neither tackled the persistent problems of poor efficiency and responsiveness, nor led to de-emphasising of the hospital sector and preventing hospital debt from reoccurring. The above shortcomings come down to what Harding and Preker (2003) describe as a coherence of the reform package. There are clear synergies between providing financial incentives, providing market pressures and good governance. On the other hand, inadequacies in one of the above areas may undermine efforts in the others.

What has resonated throughout this and the previous chapter, the essential preconditions for successful hospital autonomisation – excellent managerial qualifications, meaningful autonomy, orientation towards explicit goals and the presence of intensive bargaining and contracting – have rarely been met in full. The transformations did not decisively remove the old system's rigidities of input, nor did they enable autonomous steering of the facilities, or altered organisational structures. It also failed to define the role for local governments as owners and equip them with tools for effective control and supervision of the health care establishments

they own. Therefore, although central control was loosened, accountability remained ineffective (Jakab et al. 2003). In addition, the presence of the soft budget constraint has been the key component of ill-conceived governance reforms. The danger of forced market exit did not materialise – on the contrary, the repeated bail-out of indebted facilities further retarded progress toward financially responsible management.

The postulate of a pluralistic ownership of health care delivery (Kornai & Eggleston 2001b) has not been satisfactorily met. Reforms have been driven by ideological party politics more than international evidence. Bottom-up private initiatives have rarely been encouraged or fostered. To the contrary, rather than supporting all legally, professionally and ethically correct forms of ownership, regulation and protectionism continues its tendency to favour publicly owned health care establishments. The competitive component is often lacking, and the principle that the variety of organisational forms will lead to natural selection of the economically efficient ones has generally not been upheld. Quasi-market characteristics of the public sector are underdeveloped due to deficiencies in autonomy, accountability, performance-based payments, and exposure to competitive pressures. Boundaries of responsibility and ownership rights between the public, non-government and private domains as well as between various levels of government have not been clearly marked. This has not sufficiently encouraged legalising and formalising the activity undertaken in the grey economy of the health sector, and led to the continuation of informal payments and provision.

4.9. Conclusions

This chapter has provided a theoretical groundwork for the transition processes identified in Chapter 3. Governance has been substantiated as a key characterisation of the hospital sector, one that, along with provider payment mechanisms, completes the picture of incentives faced by providers. This is because the provider payments convey high-powered incentives and the governance arrangement determines the disposition to respond and the strength of response to those incentives. Therefore, reforms of financing and governance should be seen as complementary is creating conditions conducive to good performance.

With respect to this, a common mistake of Eastern European reformers was prioritising payer reforms. While these reforms admittedly have served as a catalyst for the health sector evolution, they neglected the need to revise the scopes of autonomy, accountability and market exposure that determine the sensitivity to payment incentives. The outcome has too often been sub-par performance of hospitals, and the permanent inability to solve the problems of overcapacity, inefficiency, poor responsiveness and recurring debt.

In any health care system, governance takes place at the levels of central government, sub-national governments and hospitals, as well as internally through bargaining by managers and

other internal participants. The areas of theory discussed here correspond to these levels and help explain the meaning of CEE/CIS governance transition. The chapter started with an assessment of allocation mechanisms of the socialist system, the starting point for all HCSs in transition. It then overviewed dilemmas regarding health care sector participation of post-communist governments. Next, it reviewed arguments behind decentralisation, which in CEE/CIS has broken the budgetary and organisational dependence on the MOH and substantially re-shaped the structure and governance of the system. The implications of this were particularly strong for regional governments that were granted primary responsibility for hospital networks, as well as hospitals and their directors who gained increasing independence but were also faced with the necessity to perform multiple new tasks demanding active management. Further in relation to this, the chapter presented considerations around ownership and legal forms that explain the issues of autonomy and incentives, as well as economic models of behaviour that throw light on internal environment, influences of participant groups and relevant principal-agent problems.

The review of relevant areas of economic theory shows that there has been substantial change in the conditions under which CEE/CIS hospitals operate, other than financial incentives. An original contribution of this chapter is a compilation of sources of improved efficiency and their relative importance (Table 4.1: Indicative economic efficiency potential per stage of hospital governance). The simple indicative framework summarises the potential of economic efficiency at each of the five stages of governance transition identified in Chapter 3. However, the framework is not specific to the post-Semashko countries and, with little adaptation, can be applied to analyses of other systems. At the same time, by identifying theories applicable at different levels of the HCS, the study and the framework contribute to the debate of the nature of decentralisation, its directions and desired extents.

The above deliberations clearly indicate that hospital autonomy can be a viable strategy for achieving health policy objectives, including those of quality, efficiency and equity. However, its successfulness critically depends on external and internal incentives, effective accountability mechanisms, and the competence of the cadre of managers. One related finding is that without ensuring the right conditions, devolution is not a magic bullet for solving the problems of hospitals. In fact, a simple transfer of ownership to territorial governments and decision-making to hospital managers will also transfer the ingrained constraints and deficiencies. In this sense, decentralisation is not in itself a panacea, and should be seen as a tool for a major overhaul in the sector rules.

To the extent that mechanisms underlying the functioning of the hospital sector are internationally universal, this study can be helpful in explaining pros and cons of approaches to governance reform. For countries more advanced in transition, it provides an opportunity to

look back and understand how past decisions regarding the structure of hospitals' management and ownership affect their current situation, and what can be made to further improve it. For countries at earlier transition stages, it offers lessons learned by their peers, indicating potential reform directions and pitfalls to avoid. For non-transition countries, this study is a step toward a unification of various arguments surrounding the HCS decentralisation, and a voice in the discussion of hospital governance that has intensified in the recent years.

Given the increasing attention it has attracted, governance appears to be a worthwhile venue for research. Future studies could take a closer look at the interplay of internal and external incentives, by formalising the model or contextualising the arguments. The latter could include the relationship of various payment mechanisms, e.g. patient-based or fee-for-service, and aspects of governance: external pressures, residual claims, decision rights, strength of accountability, and explicitness in social functions, all of which may hinge on the form of ownership. Such a comprehensive approach would likely be more successful than previous studies in explaining differences in hospital performance.

The next chapter puts the compiled framework (Table 4.1) to a test, by statistically verifying whether the potential for economic efficiency of respective transition stages materialised in the form of selected measures of hospital performance. Chapter 6 offers an insight into the equity aspect of health care in selected post-Semashko HCSs.

Chapter 5:
Statistical evidence on effects of hospital governance reforms

5.1. Introduction

From the perspective of economic incentives, two reforms were pronounced in the hospital sector of CEE/CIS since 1989. Firstly, there has been a shift from line-item budgeting to various contractual payments, in consequence of replacing selected integrated systems with social health insurance. Secondly, the hospital governance setting has evolved considerably, which has been exposed in Chapters 3 and 4. While the former reform has been subject to investigation in a number of publications referred in Chapter 2, Part II of this manuscript is the first study to systematically describe and measure the effects of hospital governance reforms. The rationalisation of hospital networks has been of great relevance to all the countries that come from the Semashko background, historically heavily reliant on inpatient care.

The aim of this chapter is to statistically verify impacts of hospital governance reforms on the levels of resources, utilisation, and outcomes in the hospital sector. The health care debate of the early 1990s and the envisaged line of the Semashko systems transition often regarded the concept of decentralisation as a golden bullet for improving hospital performance. Therefore, the research question for this chapter is whether, controlling for parallel processes taking place in the hospital sector, the altering hospital governance structures led to improved system performance.

Higher hospital performance can manifest itself in a number of ways. Measures employed in this study are absolute numbers of hospital facilities (hospitals and hospital beds per capita), utilisation thereof (average lengths of stay – ALOS, bed occupancy, volumes of hospital discharges), as well as health outcomes approximated by mortality rates. The size of hospital resources, their utilisation, and health outcomes, can all be expected to respond to changes in the hospital sector institutional setting. Theoretical bases for the expectation of decentralisation,

devolution, autonomisation and corporatisation leading to rationalised resource use and better outcomes have been explored in Chapter 4. The study design assumes an estimation of multiple models in an attempt to verify reform impacts as widely as permitted by the available data. The explanatory side of the model equation is based on the random trend model (Wooldridge 2002) and includes system inputs, hospital sector setup, trend components, and a set of demographic control variables.

The model presented here fits in a class of quantitative studies that interpret the post-communist transformation as a social experiment, and econometrically explore reform impacts by assuming a panel data structure. Notable analyses concerned the effects of SHI introduction on utilisation, expenditure, and outcomes (Wagstaff & Moreno-Serra 2009); likewise evaluation of effects of alternative hospital payment mechanisms (Moreno-Serra & Wagstaff 2010); a follow-up study by Leive (2010) in which he differentiates between GP and hospital payment mechanisms as well as controls for selected available physical resources; a cluster analysis based on 42 structural characteristics and a subsequent application of the clusters to explaining variations in life expectancy at birth (Borisova & Gerry 2010, Borisova 2011).

The approach assumed in the above studies has the benefit of providing sizeable datasets with countries splitting into the "treatment" and "control" groups, depending on their transition paths. This opportune study design possibility resembles numerous experimental evaluations of welfare reforms in the United States, which make an extensive use of annual administrative state records for building panel datasets (Blank 2002). Consequently, rather than being randomised controlled trials, they share the feature of being natural experiments, thus facing the problem of the states' self-selection for treatment being possibly endogenous to its outcomes.

5.2. Methods

5.2.1. Estimation strategy

The statistical analysis encompasses 48 models that aim to quantify the consequences of governance reforms for various areas of hospital sector operation. The response variables fall into the following categories: resources (5 models), utilisation (6) and discharges (9), as well as mortality: infant and maternal deaths (5), and disease-specific SDRs (23). Each outcome variable is modelled using a similar formulation, that is, follows the same hypothesised function of inputs, institutional setting, and trends, which is expounded in the next section. The component that varies between models is the vector of control variables, which follows suit of the outcome variable. Table 5.1 presents a summary of model specifications, including control variables. All models are estimated in Stata 12.

Table 5.1: Model specifications, by type of response measure

Response variable category (count)		System input variables	Provider payment variables	Hospital governance variables	Trend component	Control variables	Error term
Facilities (5)						urban, age, pop	
Utilisation (6)							
Disease-specific discharges (9)	=	teh, public%	ffs, casemix	mgmt, own, corp	d2-d22	urban, age	u
Infant and maternal deaths (5)							
SDRs (23)						urban	

All variables indexed for year and country. All variables double first-differentiated. All non-dummy variables log-transformed. Full description of variables provided in Chapter 5.2.2: Model specification.

5.2.2. Model specification

For answering the research question, of primary interest are the statistical significance, the signs, and the magnitude of coefficients corresponding to hospital sector reform variables. Since there exists no single indicator to adequately illustrate overall performance of the health care system (as a matter of fact, infant mortality and life expectancy are popular proxies for health outcomes), the approach here is to model each outcome indicator separately, using the same set of explanatory variables.

The study concerns a panel of 22 post-Semashko countries over 22 years after the fall of communism. The structure of the dataset calls for a panel method to be used, with each data point representing a country-year combination. Furthermore, the nature of data has implications for the choice of a specific panel data method.

The process of transition is by definition a time of great change, and considering a period as long as 22 years, there may be many factors other than the problem variables contributing to variation in response variables. This is in contrast to the individual-level panel data setting, in which individuals are often observed over short time periods. In this case, heterogeneity is well-captured by explanatory variables, and it can be safely assumed that unobserved patterns of behaviour do not change over time, making a time-invariant individual effect suitable. Here, however, given the complex and evolving nature of institutions, it cannot be convincingly argued that unobserved country characteristics and explanatory variables be independent. Formally, the core assumption of the random effects model, $\text{cov}(c_i, x_i) = 0$, is unlikely to hold. Moreover, an interpretation of individuals randomly selected from a population, sometimes used to explain the essence of the random effects model, does not seem to appropriately describe the set of countries (or any set of countries for that matter). Rather, the countries are likely to have their own fundamental characteristics and be "one-of-a-kind individuals" (Verbeek 2004). These two circumstances rule out the possibility of employing the random effects model.

Further, since virtually every health care reform aims at improving outcomes and/or system efficiency, reforms unfolding in parallel are likely to have simultaneous impact on system performance. In addition, there may be non-reform processes taking place in the system that add to the variation of performance indicators. Such contributing factors may include central and local policies, directives, standards and norms, international development strategies (such as WHO Health for All programme), as well as enforcement and implementation thereof. An example of such a circumstance was a vast reduction in the number of hospitals (75%) and hospital beds (51%) in Moldova 1995-2002 (Atun et al. 2008); these cutbacks resulted from a medium-term restructuring plan carried out by the central government. Likewise, centrally administered maximum inpatient and outpatient capacities led to reductions in hospital beds in Hungary in the late 1990s (Orosz & Holló 2001). Another non-reform source of outcomes' variation is diffusion of technology, a major determinant as far as the health sector is concerned. None of these changes can be characterised as reforms, but have influence over inputs, processes, and outcomes.

Because of these parallel processes affecting the sector's operation, the possibility of endogeneity in the model equation ought to be treated with caution. There are a number of potential sources of endogeneity. For example, changes in the institutional environment taking place in parallel to the reforms of interest, if unaccounted for in the model, will lead to omitted variable bias. Or there may be an unobservable characteristic underlying countries' propensity to reform. A latent variable of political agenda could drive both hospital reforms and system parameters, for instance, public share of expenditure on health. In effect, the presence of simultaneity would lead to estimator bias. There could also be a case for simultaneity if, for instance, achieving certain GDP thresholds triggered institutional reforms through some sort of a political mechanism. More specifically, levels of current or projected health care spending may induce policy-makers to take reform action with the goal of increasing efficiency, containing costs, etc.

Given the above considerations, there are important methodological features that a model needs to accommodate in order to reliably estimate reform effects. Firstly, except for the variables of interest, it needs to consider other reforms that determine HCS performance. Secondly, it should have the capacity to capture fundamental country heterogeneity. Thirdly, it needs allow for country-specific trends independent from the above factors, in order to cater for time-variant unobservables such as non-reform processes and varying paces of technology adoption, as discussed above. Because of the length of the time dimension of the panel, these trends may be expected to considerably contribute to variation in outcome measures. Fourthly, in providing for the above requirements, the specification must have the flexibility necessary to accommodate different categories of endogenous variables.

Accordingly, the following model is proposed by the candidate: performance measures are a function of system inputs, hospital sector institutional characteristics, and a trend that captures other processes relevant to the outcome variable. The inputs are represented by a pair of variables: total expenditure on health and the public portion thereof. Further, the configuration of the hospital sector is represented in two key dimensions: provider payments and facility governance arrangements. Moreover, other things being equal, the outcome indicator would follow a trend that is a result of improvements in technology, organisation, norms, expertise, and government-driven advancement. The trend is assumed to have a dual nature, reflected by the regional and individual components. The former captures the global trend, while the latter reflects individual countries' progress relative to the region. Finally, certain indicators may be also driven by socio-economic parameters, and therefore need to be standardised with respect to those. Hence, the model anticipates control variables: urban share of population, population ages 65+, and population size. The inclusion or omission of each of those variables is contingent on the nature of particular outcome indicators.

The specification that constitutes the base model can be formally written as:

$$y_{it} = \alpha + inputs'_{it}\beta + pay'_{it}\gamma + gov'_{it}\delta + trend'_{it}\theta + controls'_{it}\varphi + u_{it} \quad (5.1)$$

where

(1) $inputs'_{it} = (teh_{it}, public\%_{it})$ is a vector of system inputs,

(2) $pay'_{it} = (ffs_{it}, casemix_{it})$ is a vector representing the dominant provider payment method,

(3) $gov'_{it} = (mgmt_{it}, own_{it}, corp_{it})$ is a vector holding the hospital governance status,

(4) $trend'_{it} = (d_t, c_i, g_{it})$ is a vector capturing regional and individual trends,

(5) $controls'_{it} = (urban_{it}, age_{it}, pop_{it})$ is a vector of control variables,

and β, θ, γ, δ, φ are corresponding vectors of coefficients. Countries and years are indexed by i and t, respectively. The apostrophes in equation (1) indicate vector transposition. All non-dummy, non-time variables are log-transformed, both on the explanatory and response side of the equation. Natural logarithm is applied in the transformation. The use of the log-log specification aims at deflating disparities in indicator values between the countries, and in particular enables compatibility of high income countries of Central Europe and middle income former Soviet states. It is also the basic safeguard against heteroskedasticity, which is likely to occur in the dataset. As in any log-log specification, the estimates (other than those of dummy and time variables) are interpretable as percentage change – percentage impact.

The term y_{it} represents an outcome variable of choice, that is, a measure of available facilities, utilisation, discharges, or mortality. The parameter α is fixed across individuals and time, providing the base intercept for the regression; u_{it} is the usual error term.

The vector of $inputs'_{it}$ provides information on the absolute level of resources available in the public sector of the health care system. Total expenditure on health, teh_{it}, is assumed to represent the value of inputs in the health care system, and is a basic determinant of the HCS capacity for providing utilisation and health outcomes. To allow for both cross-sectional and longitudinal comparability, TEH is expressed in per capita 2005 US dollars terms and adjusted for purchasing power parity. The aggregate spending information is coupled with the variable $public\%_{it}$, representing the portion of system inputs that are attributable to the public system. Controlling for the public share of expenditure may be crucial, for instance, should public and private health care sectors have different characteristics in terms of production functions and economic efficiency.

Vectors pay'_{it} and gov'_{it} hold the institutional setting of the hospital sector. Specifically, they represent the dominant hospital payment mechanism and the dominant form of hospital governance. The institutional setting, and consequently its reforms, are potential determinants of hospital sector performance by, respectively, providing financial incentives through risk and profit components as well as determining the level of decentralisation in resource allocation, accountability and risk bearing of founding bodies, along the lines exposed in Chapter 4. Both aspects of the hospital sector are factored in the model equation using the policy dummy variable approach, in which combinations of binary variables jointly represent the possible institutional configurations.

Along the absolute levels of inputs, mechanisms for resource allocation play a critical role in determining health system performance. Reforms of the provider payment mechanisms constitute major changes to CEE/CIS health care systems, and previous analyses provide statistical evidence that they have had significant impacts on numerous areas of system performance (Moreno-Serra & Wagstaff 2010, Leive 2010). Having been empirically established as a statistically significant determinant of performance, the factor needs to be controlled for in modelling other reforms. This necessity is also substantiated from the theoretical standpoint. Harding and Preker (2003) show that external and internal incentives in the hospital environment complement each other, and discuss conditions under which a one-sided reform can be thwarted by a lack of synergy in the broader institutional environment. For example, stimulating accountability by allowing hospitals to claim the residual revenue will have no effect if the provider payment mechanism provides no opportunity for such revenue. Likewise, efficiency gains from establishing providers' competition will hinge on the presence and strength of financial incentives. The dominant hospital payment mechanism is incorporated

into Equation 1 through the vector $pay'_{it} = (ffs_{it}, casemix_{it})$. This definition allows for three broad payment modalities to be represented: the explicitly modelled fee-for-service and case-mix (in the literature also referred to as patient-based payment), as well as line-item, historical budgeting. The latter option, typical of the unreformed Semashko system, is encoded by both ffs_{it} and $casemix_{it}$ equalling zero.

The vector $gov'_{it} = (mgmt_{it}, own_{it}, corp_{it})$ specifies the dominant hospital governance setting in country i at time t. The possible states are embodied by three dummy variables indicating decentralised facility management ($mgmt_{it} = 1$), devolved facility ownership ($own_{it} = 1$), and corporatised forms of governance ($corp_{it} = 1$). Accordingly, the base (unreformed) hierarchical structure is represented by $gov'_{it} = (0,0,0)$. The reform stages correspond to the definitions and mapping of governance transition presented in Chapter 3. The vector of coefficients δ holds the estimated effect of each transition stage relative to the unreformed state.

The set of control variables is a conditional constituent of the model equation. Depending on the type of response variable, it may include the share of urban population, the share of population ages 65 and above, or population size. Urbanisation quantifies the process of modernising societies with its economic consequences. Higher urban concentrations of population may lead to increased utilisation because of facilitated access to care through lessened time and monetary costs of travel, information advantage, or otherwise. This control variable is included in all estimated models. The age structure of population is controlled for as ageing populations are likely to increasingly demand medical care. However, this variable is omitted where the outcome variable has been age-standardised (as it is in SDRs) or there is no apparent theoretical link between the age structure and mortality (infant and maternal deaths). Additionally, volumes of resources that are expressed per number of population need to be controlled for the population size. The reason is that, if unaccounted for population size, a change in the indicator due to a reduction (increase) in resources cannot be distinguished from one resulting from an increase (decrease) in population size. This applies to such measures as numbers of hospitals and hospital beds, which are expressed per 100,000 population.

Given the length of the time dimension, it is necessary to allow for a trend in y_{it}. The indicator trend may be a product of a mix of factors including technological progress, organisational improvements, or increasing expertise. Other things being equal, these unidirectional processes should over time lead to better health outcomes and more efficient resource utilisation. Generally speaking, there are two approaches to formally factoring the trend into the model equation. One is to define y_{it} as a linear or non-linear function of time. An alternative is to include a vector of year dummy variables in the equation, which is equivalent to allowing for year-specific intercepts. Here employed is the latter, non-functional option – a vector d_t consisting of dummy year variables d_2 to d_{22} (i.e. all cross-sections except for the base year

1989). Consequently, vector $\theta_d = (\theta_2, \ldots, \theta_{22})$ comprises estimators of each year's impact on the response variable. In terms of Equation 1, where $\theta = (\theta_d, \theta_c, \theta_g)$), vector θ_d captures the global trend, providing each year's own deviation from the base year 1989. The preference for this approach is based on a discussion by Wooldridge (2002). Moreover, the year-dummy models explain a greater portion of response variables' variation, compared to "a function of time" specification. Nonetheless, in Chapter 5.4 I explore the consequences of this choice by comparing the outcomes of the two approaches.

That said, countries may vary in both their base levels of outcomes and their capacity for improvement and innovation, for instance, due to some structural characteristics of the hospital sector, available technology, formal and informal practices, hospitals directors' qualifications and managerial capacity. They may also experience varying intensities of centrally-driven, non-reform advancements. For example, a government may focus on improving outcomes in a particular disease category by targeting grants or using ministerial communication channels to disseminate best practices. Consequently, that country's performance in this aspect may diverge from the regional trend.

This kind of heterogeneity is introduced into the model by two components. First, there is a time-invariant term c_i that permits each country's own base indicator level. It corresponds to the usual fixed effects' (FE) unobserved individual heterogeneity term. Second, the term $g_{it} = g_i \times t$, an interaction of a country dummy and the time variable, introduces the possibility of an individual trend. In fact, c_i and g_{it} are similar in the sense that they both convey information on individual heterogeneity. However, while c_i is constant, g_{it} is a characteristic that has an additive effect over time. Thus, looking at the model specification, each country is allowed its own intercept $\alpha + c_i$, moreover, at time t it may deviate from the regional trend by $g_{it}\theta_g$. The global and individual trends make up the total trend expression $\alpha + d_t\theta_d + c_i\theta_c + g_{it}\theta_g$. This specification is analogous to the random trend model proposed by Wooldridge (2002). The idea of countries following their own trends originated from studies of economic growth and has been successfully adopted in modelling of institutional health care reform.

For Equation 1 coefficients to be estimated consistently, the assumption of strict exogeneity of the explanatory variables has to be met. Formally, with respect to individual effects:

$$E(u_{it}|g_{it}, c_i, x_{it}) = 0$$

where $x_{it} = (mgmt_{it}, own_{it}, corp_{it}, ffs_{it}, casemix_{it}, teh_{it}, public\%_{it}, age_{it}, urban_{it}, pop_{it}, d_t)$

This is typically a strong assumption and therefore is unlikely to hold. The parameters of individual heterogeneity c_i and g_{it} are plausibly correlated with some of the explanatory variables, through a latent variable or otherwise. However, conditions for obtaining consistent

estimators can be furnished through a transformation of Equation 1 that eliminates c_i and g_{it} from the model. By first-differencing Equation 1 we get:

$$\Delta y_{it} = \Delta inputs'_{it}\beta_{FD} + \Delta pay'_{it}\gamma_{FD} + \Delta gov'_{it}\delta_{FD} + \Delta trend'_{it}\theta_{FD} + \Delta controls'_{it}\varphi_{FD} + \Delta u_{it} \quad (5.2)$$

where $\Delta y_{it} = y_{it} - y_{i,(t-1)}$.

This transformation eliminates c_i, while the other idiosyncratic term g_{it} persists in the differenced equation, albeit as a constant ($\Delta g_{it} = g_i t - g_i(t-1) = g_i$). One possibility of doing away with the problematic term is to first-difference Equation 2. Eliminating g_i this way is an attractive venue because first-differencing also safeguards against serial correlation of the term Δu_{it} that is likely to occur in this setting (Wooldridge 2002). Here, the resulting loss of another cross-section is not critical given the longitudinal size of the panel. An alternative way would be to proceed with a FE regression of Equation 2 that would also eliminate g_i. However, for the estimators to be consistent, this approach requires both homoskedasticity and no serial correlation of the error term. Models that display no violation of these assumptions can be estimated using fixed effects. While this option is considered inferior for most of the models, when feasible, it is explored in Chapter 5.6 as an alternative approach.

Applying the first-difference transformation to Equation 2 results in the final specification:

$$\Delta^2 y_{it} = \Delta^2 inputs'_{it}\beta_{FD2} + \Delta^2 pay'_{it}\gamma_{FD2} + \Delta^2 gov'_{it}\delta_{FD2} + \Delta^2 d_t\theta_{d,FD2} + \Delta^2 controls'_{it}\varphi_{FD2} + \Delta^2 u_{it} \quad (5.3)$$

where $\Delta^2 y_{it} = \Delta y_{it} - \Delta y_{i,(t-1)} = (y_{it} - y_{i,(t-1)}) - (y_{i,(t-1)} - y_{i,(t-2)}) = y_{it} - 2y_{i,(t-1)} + y_{i,(t-2)}$. Double first-differencing has reduced $trend'_{it}$ to d_t by eliminating both individual components.

This specification has the virtue of alleviating the problem of endogeneity without forgoing estimation feasibility. Given that $E\{\Delta^2 x_{it}\Delta^2 u_{it}\} = 0$, which stems from the assumption of explanatory variables' strict exogeneity, Equation 3 can be estimated using pooled ordinary least squares (OLS). This double first-difference transformation followed by an OLS estimation is henceforth referred to as FD2.

Finally, in applying pooled OLS to panel data, one has to consider the presence of intragroup correlation of observations. While observations can plausibly be considered independent between countries, the same is not necessarily true within-country. In order to partly relax the assumption of independent observations, variance-covariance matrix estimates can be obtained with individuals (here: countries) defined as observation clusters. Using this option will render cluster-robust (unbiased) standard errors, which also have the virtue of neutralising the problems of serial correlation and heteroskedasticity in pooled OLS (Wooldridge 2002).

Comment on unbalanced panels

The data panel of full dimension (i.e. balanced) would consist of 484 observations (22 individuals, 22 cross-sections). However, due to data limitations, mainly of outcome variables, the effective panels include between 125 and 417 observations (see results' tables Chapter 5.5), with the average of 343.3 (std. dev. 52.4). This not only reduces the panel size, by also necessitates that modelled are unbalanced panels.

The question thus arises of whether the unbalanced panels have implications for the estimation outcomes. For settling this question it is central to understand how the missing observations are generated. For instance, there is a possibility that poorer, less reformed countries are also disadvantaged in terms of information systems and thus suffer from incomplete data. This, in turn, would lead to more developed countries being overrepresented in some model samples. On the other hand, should the selection be entirely random, the statistical method would be consistent and asymptotically normal. Wooldridge (2002) provides a full discussion of this.

Here, the missing data appears to threaten neither the feasibility of models nor the consistency of statistical findings. Considering the wide selection of outcome variables used in this study, poorer countries are not systematically disadvantaged in terms of missing data. Nor are CEE countries immune to the problem. Countries of both upper and lower income range may miss a series of values, while providing a complete value set of another variable. An inspection of the dataset does not reveal a pattern in this regard. The simple correlation value between the per cent of missing outcome variables and GDP p.c. in the pooled sample is -0.042, which indicates a negligible relationship. Spearman's rank correlation coefficient, rho=0.0006 calculated on 477 observations, indicates that the two variables are independent (p-value 0.9889). As an illustration, the share of missing values against a logarithm of GDP p.c. is plotted in Figure 5.1. In terms of data completeness through time, the initial and most recent periods show higher shares of missing data, compared to the intermediate period, when the cross-section average of missing values is the lowest and fluctuates around 10%. This indicates there is no consistent improvement taking place over time, as shown in Figure 5.2.

To further safeguard against the possibility of selection being related to idiosyncratic errors, I re-estimate the base model adding a lagged selection indicator, i.e. a dummy variable indicating whether the preceding observation is missing (Nijman & Verbeek 1992). The new variable results statistically significant in two models: SDRs of cerebrovascular diseases (p-value 0.043) and appendicitis (0.02). In the remaining 46 models, no evidence is found to support missing observations as predictors of the endogenous variable.

Figure 5.1: Per cent of missing values of 48 outcome variables, by log GDP p.c.

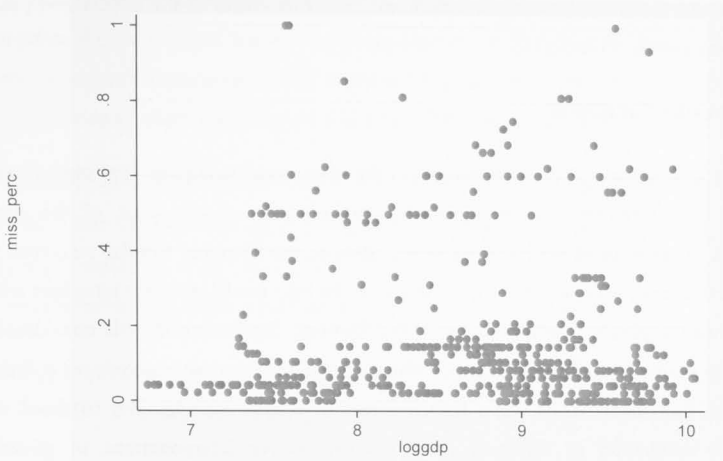
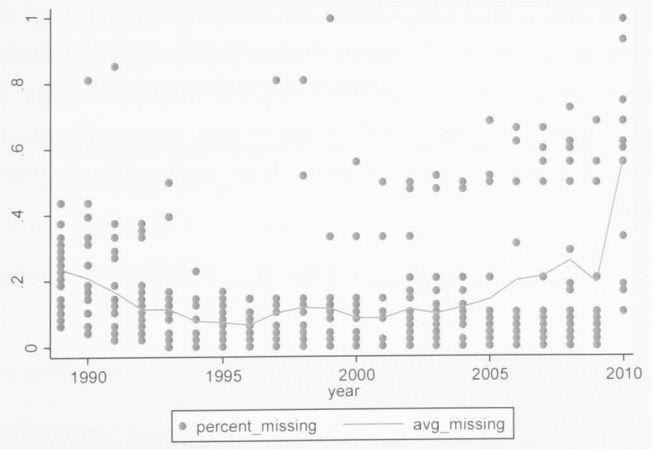


Figure 5.2: Per cent of missing values of 48 outcome variables, by year



Finally, none of the previous peer-reviewed studies using similar methodology (enumerated in the introductory section of this chapter) assumes special treatment of the unbalanced panels or reports this as a study obstacle.

5.2.3. Robustness of results

This section sets out to verify the robustness of the base model results by exploring alternative specifications and reform interpretations. In particular, it relaxes some of the previous assumptions or takes an alternative approach to data or specification. Similar outcomes imply that a particular method or interpretation chosen for the base model does not introduce arbitrary bias, and thus corroborate the robustness of the findings. Alternative models considered here are: (a) a quadratic function of time in place of the year-dummy vector; (b) a quadratic extension of individual trends; (c) a lagged effect of reform introduction; (d) fixed effects approach to estimation of Equation 2; and (e) alternative interpretations of governance arrangements. New results are examined against the base model in Chapter 5.6.

Quadratic time function

In order to capture the global indicator trend, the base model employs a vector of year dummy variables, thus capturing each year's departure from the base year 1989. An alternative approach to account for the trend is to use a square function of time in the model equation. Since the trend component plays a vital role in the model by containing the change unaccounted for by other explanatory and control variables, it is worthwhile inquiring whether its form has influence over the outcomes. Equation 4 presents the modified specification, replacing the year-dummy vector with a quadratic time function. As previously, the linear component is eliminated in the FD2 transformation.

$$\Delta^2 y_{it} = \Delta^2 inputs'_{it}\beta_{FD2} + \Delta^2 pay'_{it}\gamma_{FD2} + \Delta^2 gov'_{it}\delta_{FD2} + \Delta^2 t^2\theta_{t,FD2} + \Delta^2 controls'_{it}\varphi_{FD2} + \Delta^2 u_{it} \quad (5.4)$$

Quadratic individual country trends

The trend factor incorporated in the base model has two components: global and individual. This formulation enables the country trend to be interpreted as a deviation from the trend common to all the countries of the region. One limitation of the base model is that it imposes a linear form on the individual trend. This restriction enables double first-differencing of Equation 1 to eliminate the individual trend component, thus shunning the potential presence of endogeneity in the system and ensuring the estimates are bias-free. However, given the number of cross-sections, the assumption of a linear deviation may come as overly strong to adequately represent the actual country progress. Some countries took rapid transformation steps in the early 1990s, only to slow down their transition in the second decade. In the previously discussed

case of Moldova 1995-2002, government-driven changes led to a dramatic reduction in hospital resources, a process that levelled off in the later years (Atun et al. 2008). Under the base model assumption, this adjustment would be averaged out by a linear fit. Therefore, it is relevant to consider an extended specification that would allow a quadratic form of the individual trend and to see the extent to which removing the linear restriction alters the outcomes.

The specification is a generalised version of the base model, i.e. the base model is nested in Equation 5 with the condition $g_{it}^2 = 0$. The original individual trend component g_{it} is replaced by $g_{it} + g_{it}^2$, where $g_{it}^2 = g_i t^2$ and g_i is a country dummy variable. As before, by the means of FD2 transformation the linear components are eliminated, and resulting is:

$$\Delta^2 y_{it} = \Delta^2 inputs'_{it}\beta_{FD2} + \Delta^2 pay'_{it}\gamma_{FD2} + \Delta^2 gov'_{it}\delta_{FD2} + \Delta^2 d_t\theta_{d,FD2} + \Delta^2 g_{it}^2\theta_{g^2,FD2} + \Delta^2 controls'_{it}\varphi_{FD2} + \Delta^2 u_{it} \quad (5.5)$$

For the model to be estimated consistently, the condition $cov(g_{it}^2, x_i) = 0$ is required to hold. However, this assumption can neither be formally proven nor statistically tested, and the quadratic trend component cannot be eliminated through a model transformation. Consequently, changes in the parameter estimates relative to the base model may result both from removing the restriction of individual trend linearity and from the problem of endogeneity. The latter would occur, for example, in case there was simultaneity between country trends and control variables. Therefore, given that the outcomes cannot be demonstrated bias-free, this specification is only estimated and discussed informally.

Despite this methodological predicament, it is informative to know the outcomes of the extended specification. Should the estimates be identical or nearly identical to those previously obtained, it would substantiate the base specification as unlikely to suffer from the omission of the squared trend component. This is owing to the fact that it is unlikely for the patterns of endogeneity to even out effects of the individual trends' extension.

Fixed Effects estimation

As explained in Chapter 5.2.2, Equation 2 can be estimated using either of two methods: first-differenced pooled OLS and fixed effects. The base model relies on the first approach to eschew the potential problems of autocorrelation. However, where no autocorrelation is confirmed, FE is a viable alternative (Wooldridge 2002). The aim of this specification is to verify whether the alternative approaches lead to similar statistical outcomes and thus to consistent conclusions.

In order to verify the sensitivity of findings with respect to the above alternative, I first determine the set of models that are suitable for both FD and FE. I verify the presence of autocorrelation in the residuals of Equation 2 and discard the models where the issue is detected.

In order to verify the presence of autocorrelation, I use the xtserial Stata command that performs a test for serial correlation of the first-differenced error terms in a linear panel data model. The test was first proposed by Wooldridge (2002) and popularised by Drukker (2003) who demonstrated the test's desirable characteristics in terms of statistical properties in samples of moderate size. As expected in this setting, a majority of models are found to suffer from the presence of serial correlation, supporting the original choice of the more flexible FD2 approach for the base model. However, in eight models the null hypothesis of no first-order autocorrelation is supported by the statistical test. Thus selected models are re-estimated using the potentially more efficient FE. As previously, option "cluster" is used at the country level to prevent the issue of heteroskedasticity, which in Stata also implies robust variance estimates. While Stata does not allow for the option "noconstant" in FE models, this does not pose a problem. The presence of the intercept only affects the interpretation of year dummy variables – the year-specific intercept under this specification equals $\alpha + \theta_t$.

Lagged effects

The following extension furnishes the model with the capacity to capture a delayed reform effect. There are a number of reasons why certain consequences may not materialise in the concurrent year. Firstly, reforms may become effective throughout the year rather than on January 1st. This may leave less time for the new setting to be reflected in the outcome variables. Secondly, the impact may be partly delayed because of the organisational unresponsiveness, legal disputes, medical professionals' protests, or other kinds of institutional inertia. Reform proceedings in CEE/CIS were rather choppy in this respect, particularly in the first decade after the fall of communism (compare Chapter 2.6 on consistency of reform). Thirdly, a reform of a disruptive nature could cause initial disturbances (e.g. organisational, legal) that only after some time of adjustment would give way to efficiencies of the new setup. For the above reasons, it may be justified to extend the model with a lagged reform variable to verify the hypothesis of the second-year effect.

The model, Equation 6, is equivalent to the base Equation 3 other than it also includes a vector of lagged dummy reform variables $gov'_{i,(t-1)}$.

$$\Delta^2 y_{it} = \Delta^2 inputs'_{it}\beta_{FD2} + \Delta^2 pay'_{it}\gamma_{FD2} + \Delta^2 gov'_{it}\delta_{(0),FD2} + gov'_{i,(t-1)}\delta_{(1),FD2} + \Delta^2 d_t\theta_{d,FD2} + \Delta^2 controls'_{it}\varphi_{FD2} + \Delta^2 u_{it} \quad (5.6)$$

Alternative interpretations of institutional arrangements

The final robustness check uses alternative coding of hospital governance variables, where the literature is not clear-cut about the timing or scope of reform. This is further discussed in Chapter 5.6, in connection to variables of hospital governance.

5.3. Data

5.3.1. Explanatory variables

Hospital governance

The explanatory side of the model equation broadly consists of institutional reform variables, system inputs, regional and individual trends, as well as control variables. The former are of central importance as they directly address the research question. As far as hospital governance is concerned, the policy dummy variables reflect the transition stages laid out in Chapter 3. Therefore, the modes of hospital sector governance are: no reform (basic state), decentralised management, devolved ownership, and corporatised. The variable values correspond to the full mapping of hospital sector transition presented in Table 3.1. However, as opposed to the transition mapping, the statistical model does not encompass privatisation. This is following the observation that privatisation, as a dominant mode of hospital governance, accounts for only three observations in the dataset, all within one country (Georgia 2008-2010). FD2 transformation reduces the number of observations down to a sole instance of privatisation (Georgia 2008), effects of which cannot be estimated; in terms of statistical analysis, this situation is undistinguishable from the observation's error term. Instead, this case is unified into the category "corporatisation", based on the understanding of privatisation as a special case of corporatisation where the organisation controlled by private sector investors operates autonomously from the government structures. Nonetheless, since this mode of governance may have altogether distinctive characteristics, this interpretation is subject to model robustness scrutiny.

Alternative interpretations of hospital governance

The base model relies on governance variables according to Table 3.1: Mapping of hospital governance transition. The mapping is a quantification of reforms, produced in the course of overview of country profiles and experts' publications. While the literature review proved fruitful in characterising this previously unexplored area of transition, a number of interpretation ambiguities arose in the process of codifying reform variables for the purposes of the quantitative study. The ambiguities stem from the descriptive nature of the source materials, the most common problems being: (a) a variety of arrangements put in place in a country at a given time, making it difficult to choose the predominant/most relevant one; (b) a lack of specificity in description, e.g. no detailed information on year of commencement, duration, scope, involved subjects, economic features; (c) unclear, ambiguous or contradicting descriptions; and (d) inconsistencies between literature positions. Practically, in terms of quantifying the collected information, the problem of interpretation materialised in two broad situations. One stemmed from ambiguously pictured boundaries between central and decentralised competencies. The

other related to vaguely defined scopes of authority, responsibility and risk-bearing transferred in the process of ownership devolution; this made it difficult to mark the difference between superficial adjustments and actual systemic change.

Generally speaking, most interpretation challenges concerned circumstances of the less developed, non-reformed CIS countries. The problems had their sources both in the quality and quantity of publications and in the characteristics of reform processes. The Commonwealth of Independent States experienced fewer milestone changes, and the formal continuation of some Semashko arrangements obscures the more subtle reformation steps that may have taken place. In fact, most of the CIS countries introduced a degree of local structures' autonomy, even if their health sectors remained headed by the Ministries of Health. However, the nature of these systems is largely informal and unregulated, because centrally-steered systems of the Semashko tradition do not rely on explicit regulation as much as on internal structures, rules and influence. Thus, the incertitude in understanding these systems results from the prominence of informal authority and centralisation of decision powers by influential individuals, which add up to a difficulty in judging the actual extent of local governments' discretion over resource allocation.

On the other hand, to some extent it is the literature of the subject that fails to provide sufficient information. Despite the fact that the Health Systems in Transition series aims at catering comparable country profiles, certain aspects of resource allocation remain absent from the publication template, and thus their relevance is left to local authors' discretion. This results in sketchy and patchy descriptions of matters central from the economic standpoint. Also, the main interest in this study is in the actual rather than nominal arrangements that influence resource allocation. As the reality of CEE/CIS shows, these two areas often diverge. The interpretation puzzle is also in part attributable to distinguishing between real decentralisation/devolution from delegation/de-concentration, the latter conveying little economic incentive, that are often difficult to tell apart in complex institutional settings.

Given the abovementioned concerns, it is worthwhile exploring the areas of ambiguity and verifying the sensitivity of results to the choice of interpretation. So, the last robustness check concerns the base specification (Equation 3), however, estimated using an alternative coding of hospital governance variables. Modifications in the understanding of the institutional setting include Kazakhstan, Kyrgyzstan, Moldova, Turkmenistan, and Ukraine. Further, relaxed is the supposition that privatisation is a particular case of corporatisation and has the same characteristics, which originally led to merging the two scenarios. This problem has been a prominent subject of health economic studies, and it has been argued and demonstrated that private hospitals may display different behaviour and have distinct properties of economic efficiency compared to those publicly owned (Sloan 2000). Thus, in the alternative interpretation, the observations involving privatised hospitals are discarded rather than merged

into the corporatised category. A summary of the alternative interpretations is provided in Table 5.2. Estimation results are discussed together with other alternative specifications in Chapter 5.6.

Table 5.2: Alternative interpretations of key reform variables

	Hospital governance stage					
Country	**Centralised system**	**Decentralised management**	**Devolved ownership**	**Corporatised facilities**	**Privatised facilities**	**Alternative interpretation**
Albania	1989-2010					
Armenia	1989-1995		1996-1997	1998-2010		
Azerbaijan	1989-2010					
Bulgaria	1989-1990	1991	1992-1998	1999-2010		
Belarus	1989-2010					
Czech Republic	1989-1991	1992-2002		2003-2010		
Estonia	1989-1993	1994-2001		2002-2010		
Georgia	1989-1994	1995-1996	1997-2007		2008-2010	cross-sections 2008-2010 removed from the dataset to eliminate privatisation
Hungary	1989		1990-2010			
Kazakhstan	1989-1994	1995-2010				from 1995 devolved ownership, from 2006 more than 50% of hospitals corporatised
Kyrgyzstan	1989-1993	1994-2010				from 1997 devolved ownership, from 2004 most hospitals corporatised
Latvia	1989-1992		1993-1999	2000-2010		from 2004 devolved ownership with most hospitals converted into state hospitals with local gov'ts as funding bodies
Lithuania	1989-1990		1991-1996	1997-2010		
Moldova	1989-2002	2003-2010				
Poland	1989-1990	1991-1998	1999-2010			
Romania	1989-2001		2002-2010			
Russian Federation	1989-1992	1993-2010				
Slovakia	1989-2003		2004-2010			
Tajikistan	1989-2010					
Turkmenistan	1989-2010					country excluded from analysis as data not reliable (Rechel & McKee 2007)
Ukraine	1989-2010					from 1997 decentralised management, "functional deconcentration"
Uzbekistan	1989-2010					

Provider payment mechanisms

The main reason for incorporating provider payment mechanisms into the model is that they have been substantiated as significant determinants of the quantity, quality and cost of health care. Fee-for-service and case-mix are the two major hospital payment modalities that emerged in the region as alternatives to Semashko's line-item budgeting. The relative merits of these two

broad payment systems are in line with the discussion of "cost-based" and prospective reimbursement by Ellis and McGuire (1986). The former category includes arrangements that put the provider in control of the volume of services supplied, such as per procedure, per diem or another form of bed-days. These types of payments are susceptible to supplier induced demand, as they guarantee a contracted level of revenue per unit of service utilised. In effect, the provider has the incentive to oversupply the services on which it profits, and undersupply the services reimbursed below the actual costs of provision. Case-mix reimbursement, on the other hand, is typically based on an average cost of provision within a group of providers, and thus encourages efficiency by putting the weight of financial risk on the provider. The financial and health outcomes of this arrangement depend on the mechanism for price determination and the overall effectiveness of the case-mix system. "DRG creep", overprovision of profitable services and underprovision of the non-profitable ones, as well as risk selection, are examples of strategic behaviours that may exploit this system.

Pure FFS and case-mix are by no means are the only payment schemes to be put in operation in CEE. Most countries employ a mix of payment mechanisms, and singling out the dominant one may be both challenging and conditional on interpretation of the implemented system. For example, in Russia formally in place is a hospital reimbursement system that involves both historical budgeting and a case-mix scheme. Under such a system, hospitals could be expected to respond at the margin to case-mix incentives. However, it has been reported that the case-mix component is largely ignored by facility administrators, blunting the incentive effect and reducing the effectiveness of the payment system to that of historical budgeting (Tragakes & Lessof 2003). In the Czech Republic, "the typical purchaser–provider contract for inpatient care has consisted of three or four different reimbursement mechanisms, including case payments based on DRGs, individual contracts, global budgets and, since 2009, capped fee-for-service payments for hospital outpatient care" (Bryndová et al. 2009). In some cases, the ambiguity stems from interpretation discrepancies between publications treating of health financing. For instance, the period 1999-2005 in Kazakhstan is inconsistently reported as dominated by either FFS or case-mix, depending on source (Kulzhanov & Rechel 2007, Fuenzalida-Puelma et al. 2010, Moreno-Serra & Wagstaff 2010, Leive 2010). To deal with the uncertainty and allow for a reasonable simplification for the purposes of modelling, I follow a few criteria in determining policy variables. Firstly, I give priority to peer-reviewed publications. Secondly, in considering contradicting literature indications, I choose the interpretation that is more prevalent and/or more specifically described than others. Thirdly, when a mix of payment methods is in place, I select the one that is most likely to affect hospital behaviour at the margin.

In reality, payment mechanisms (as well as governance modalities) that go under one name may display considerable design differences between countries. In the often turbulent times of transition, some countries introduce payment systems that are faulty altogether. Therefore, the

levels of instrument sophistication, optimisation, as well as carefulness of implementation vary, vide the degree of refinement of case-mix systems in Armenia and Hungary (cf. Hakobyan et al. 2006, Gaál et al. 2011). The model approach simplifies these mechanisms in an attempt to control for the incentives in hospital service provision, with the usual downside of overlooking the existing variety. A mapping of provider payment mechanisms used in the base specification is presented in the Appendix I, Table A.1.

Table 5.3: Reform variables characterising the hospital sector

Variable name	Variable description	Count positive (% positive)	Definition	Source
mgmt	Decentralised management	81 (17%)	1 if hospital management decentralised to a sub-national tier of government but no devolved ownership or corporatisation of hospitals, 0 othewise	author's own mapping based on literature overview (Table 3.1)
own	Devolved ownership	82 (17%)	1 if facility ownership devolved to a sub-national tier of government but no coporatisation, 0 otherwise	author's own mapping based on literature overview (Table 3.1)
corp	Corporatised facilities	67 (14%)	1 if hospital facilities considerably autonomous via corporatisation or other means, 0 otherwise	author's own mapping based on literature overview (Table 3.1)
ffs	Fee for service	50 (10%)	1 if FFS dominant hospital payment mechanism, 0 otherwise	reconciled Moreno-Serra & Wagstaff (2010) and Leive (2010), with own adjustments based on literature overview (Appendix I, Table A.1)
casemix	Casemix	146 (30%)	1 if case-mix dominant form of hospital payment, 0 otherwise	reconciled Moreno-Serra & Wagstaff (2010) and Leive (2010), with own adjustments based on literature overview (Appendix I, Table A.1)

System inputs

In modelling institutional reforms a number of other factors potentially affecting system performance ought to be taken into consideration, which is reflected in Equation 3. Total expenditure on health per capita reflects the value of system inputs. Ceteris paribus, higher health care system inputs may enable increased utilisation or better quality, potentially yielding improved health outcomes. TEH p.c. is calculated as a product of GDP p.c. and expenditure on health as per cent of GDP. The preference is given to GDP per capita expressed in terms of purchasing power parity, because it captures the value of goods and services forgone in exchange for health care inputs, thus better reflecting the real costs of the system operation. This real opportunity cost approach enables comparability of economies with heterogeneous structures of prices.

Admittedly, an inputs' variable reflecting specifically hospital expenditure would constitute a potentially superior alternative to TEH p.c. While information on hospital expenditures is available in OECD System of Health Accounts (OECD.Stat), it only concerns five CEE

countries in years 2001-09 (over this period, Czech Republic, Estonia, Hungary, Poland and Slovakia spent on the average 36.6% of their TEH on hospitals). However, no such dataset exists for the time period and set of countries required by the scope of this study. Nevertheless, the hospital sector does not operate independently from other sectors of health care. The opposite is true – the inputs in public health and primary care are likely to influence both the hospital sector spending and its outcomes, thus to some extent justifying the prevalent use of total health care expenditure in previous studies. Furthermore, the model operates on log transformed expenditure variables. Supposing the proportion of hospital spending in TEH remains constant, a percentage increase in total expenditure would result in the same proportional increase in the hospital share of spending, and for the purpose of model estimation there would be no difference between the two variables. How strong is the assumption of constant hospital share in TEH? Looking again at the five CEE OECD countries, the average annual change in hospital expenditure as percentage of TEH equalled 0.2 percentage point, with a standard deviation of 2.84. A one-sample mean-comparison t-test fails to reject H_0: mean=0 with p-value=0.6577, n=39. Thus, the parameter of interest does display some variation, however, given the model specification, the use of TEH p.c. for representing system inputs does not appear to pose a methodological problem.

The data of GDP per capita and total expenditure on health as share of GDP were acquired from The World Bank World Development Indicators (WB WDI) database. The database covers the period 1995 to 2010. Values for the year 1990 were obtained from Murray et al. (1994) and the remaining missing values, year 1989 and the period 1991-94, were linearly interpolated (the 1989 values were extrapolated, to be exact). In the same manner were supplemented the respective missing values of the indicator "public share of total health expenditure". Controlling for the relative level of public spending allows for public and private sectors' distinct properties in terms of their production functions, and coupled with TEH p.c. determines the value of public sector inputs. Altogether, the interpolated values amount to 0.57% of data points in the panel (213 estimated values in a dataset of 22 countries x 22 cross-sections x 77 variables). Not allowing for the interpolation would result in a loss of 21.7% of all observations, and severely limit the information on early transition years.

Control variables

The population age structure is approximated by the indicator "share of population ages 65 and above" and aims to represent the cost-pressures that stem from population ageing. Urban population as per cent of total population controls for additional care utilisation that may originate from urban dwellers' facilitated access to care and availability of information, as well as distinct lifestyles and living conditions. Both indicators were acquired from the WB WDI database. In addition, Equation 3 includes a set of dummy variables, which allow for estimating

Table 5.4: Input and control (continuous) variables

Variable	Obs (% completeness)	*Mean (st.dev)* 1989	2009	1989 - 2009 % change	Definition	Source
Total expenditure on health per capita	474 (98%)	313.94 (135.24)	715.75 (381.91)	128%	Product of [Total Health Expenditure as % of GDP] and [GDP per capita, PPP]	- World Bank WDI database, accessed 22 May 2012: GDP per capita, PPP (constant 2005 international $) (1989-2010); Health expenditure, total (% of GDP) (1995-2010) - Murray et al. 1994: Total health expenditure, % of GDP (1990) - 1989, 1991-1994 values product of actual GDP p.c. and estimated values of Total Health Expenditure as % of GDP (linear interpolation based on years 1990 and 1995)
Public share of total expenditure on health	474 (98%)	69.51 (8.13)	65.09 (11.02)	-6%	Health expenditure, public (% of total health expenditure)	- World Bank WDI database, accessed 22 May 2012: Health expenditure, public (% of total health expenditure) (1995-2010) - Murray et al. 1994: Public health expenditure as % of total (1990) - Values for years 1989, 1991-1994 linearly interpolated based on values years 1990 and 1995
Age structure	484 (100%)	9.59 (2.46)	12.27 (3.71)	28%	Population ages 65 and above (% of total)	World Bank WDI database, accessed 22 May 2012
Urban population	484 (100%)	64.1 (11.01)	63.45 (12.51)	-1%	Urban population (% of total)	World Bank WDI database, accessed 22 May 2012
Population size	484 (100%)	385,434,163*	381,698,505*	-1%	Population, total	World Bank WDI database, accessed 22 May 2012

* CEE population total

Means are population-weighted, except for public share of TEH that is weighted by total health expenditure. 1989 to 2009 change is the percentage change in weighted regional means $\frac{2009\ \text{value} - 1989\ \text{value}}{1989\ \text{value}}$.

year-specific intercepts. This is a way of controlling for unidirectional technological and organisational progress as well as reflecting non-reform efforts in de-emphasising the hospital sector and improving its performance. These variables were generated from panel data parameters.

5.3.2. Variables of resources and utilisation

The study is designed to independently estimate a number of econometric models in order to verify the impacts of hospital governance reforms on various areas of health care system performance. Given that the explanatory side of the equation is similar in each case, the outcome indicator is both a key specification component and the model-identifying item. The outcome variables fall into three categories: hospital resources, utilisation and discharges, and mortality. The choice of variables is based on the criteria of (a) availability of data, (b) relevance to hospital sector performance, (c) cross-sectional and over-time comparability.

Facility variables are standardised per 100,000 population and include numbers of hospitals, acute care hospitals, hospital beds, acute care hospital beds, and psychiatric hospital beds. The "hospital" category includes general, specialized, acute care and long-stay hospitals; it excludes balneological institutes, health resorts, sanatoria, nursing homes for the physically and mentally disabled, homes for the elderly, day centres, day hospitals. The hospital, as defined, may but does not have to provide outpatient services (WHO HFA-DB).

Utilisation is expressed with two variables of average lengths of stay (in acute care hospitals as well as all hospitals), acute care hospitals' bed occupancy rate (in per cent terms), and hospital discharges. The latter category consists of both aggregate and disease-specific variables. The aggregate discharge measures are inpatient care discharges, acute care discharges (both per 100 population), and inpatient surgical procedures per year (per 10,000 population). Measures of disease-specific discharges are expressed per year per 100,000 population and include: (1) neoplasms, (2) cerebrovascular diseases, (3) the circulatory system, (4) the digestive system, (5) infectious and parasitic diseases, (6) injury and poisoning, (7) ischaemic heart disease (IHD), (8) musculoskeletal system and connective tissue, and (9) the respiratory system. A summary of variables along with selected descriptive statistics are provided in Table 5.5. All the above data were derived from the WHO Health for All Database (WHO HFA-DB).

5.3.3. Variables of mortality

Measuring health outcomes at the aggregate system level presents serious theoretical and practical challenges. Here, the outcomes are approximated by measures of mortality. Certainly, this approach assumes away the morbidity dimension of health. This imposes a considerable constraint on the universality of findings, given that contemporary health care system challenges

Table 5.5: Measures of hospital resources and utilisation

No	Measure	Obs (% completeness)	*Mean (st.dev)* 1989	2009	1989 - 2009 change
	Facilities, per 100,000 population				
1	Hospitals	421 (87%)	6.74 (2.68)	3.98 (1.9)	-41%
2	Acute (short-stay) hospitals	291 (60%)	7.16 (1.23)	3.2 (1.9)	-55%
3	Hospital beds	414 (86%)	1238.79 (166.61)	684.13 (176.2)	-45%
4	Acute care hospital beds	376 (78%)	959.54 (188.12)	501.77 (135.36)	-48%
5	Psychiatric hospital beds	419 (87%)	119.11 (31.88)	64.3 (26.33)	-46%
	Utilisation				
6	Average length of stay, all hospitals	469 (97%)	15.55 (1.47)	9.42 (2.61)	-39%
7	Average length of stay, acute care hospitals only	316 (65%)	13.42 (0.75)	8.97 (1.98)	-33%
8	Bed occupancy rate in %, acute care hospitals only	287 (59%)	80.98 (4.05)	79.19 (16.67)	-2%
9	In-patient care discharges per 100	470 (97%)	22 (4.21)	19.26 (5.27)	-12%
10	Acute care hospital discharges per 100	325 (67%)	22.19 (2.35)	16.43 (4.71)	-26%
11	Inpatient surgical procedures per year, per 100,000	255 (53%)	4908.81 (1132.04)*	4747.49 (3223.64)	-13%
	Hospital discharges, disease groups, per 100,000				
12	Cerebrovascular	434 (90%)	339.72 (152.1)	508.39 (323.78)	50%
13	Circulatory system	440 (91%)	2133.44 (644.6)	2783.42 (1194.89)	30%
14	Digestive system	441 (91%)	2009.92 (601.17)	1736.28 (491.44)	-14%
15	Infectious and parasitic	439 (91%)	989.44 (533.43)	756.31 (285.23)	-24%
16	Injury and poisoning	440 (91%)	1435.9 (371.65)	1308.51 (461.73)	-9%
17	Ischaemic heart disease	431 (89%)	647.16 (215.97)	937.78 (672.59)	45%
18	Musculoskeletal system and connective tissue	440 (91%)	991.87 (529.63)	943.24 (471.2)	-5%
19	Neoplasms, all	439 (91%)	742.85 (239.28)	1223.21 (704.22)	65%
20	Respiratory system	438 (90%)	3123.91 (1521.06)	2448.86 (1005.43)	-22%

* 1990

All measures were obtained from and follow definitions in the WHO Health For All database.

Means are population-weighted, except for no. 6, 7, and 8 that are weighted by, respectively, numbers of hospital episodes, acute hospital episodes, and beds. 1989 to 2009 change is the percentage change in weighted regional means $\frac{2009\ value}{1989\ value} - 1$.

focus primarily around the quality of life, as illustrated in the rectangularisation of the survival curve and the accompanying compression of morbidity (Fries 1980). There are two main reasons why mortality measures should nonetheless be relied on. First, they are abundant and of reasonably good quality, allowing comparisons of large groups of countries over long periods of time. This is paramount in Eastern Europe, an emerging region in which availability of past data cannot be taken for granted, especially in the early years of transition. Second, they illustrate precisely the process of tackling the mortality aspect of quality-adjusted life expectancy. As the data in Table 5.6: Measures of mortality attributable to hospitals show, the region has made considerable progress in this respect. However, since the morbidity dimension of health outcomes is left out in this study, generalised conclusions regarding HCSs have to be drawn with caution.

Selection of mortality indicators poses a conceptual and methodological problem because deaths from certain conditions are not directly attributable to performance of the HCS. Conversely, some deaths may be considered avoidable and thus, to various extents, amenable to health care. Further still, the hospital sector might not be accountable for the whole of avoidable mortality, because some of it may be resulting from deficiencies in public health, primary care, emergency medical services, etc. This is likely to be the case with diseases in which prevention or early detection play critical roles for the treatment results, such as lung cancer. Therefore, in assessing the health system's and hospital sector's performance using mortality, one has to make a deliberate choice of relevant mortality variables. In order to aid this, Rutstein et al. (1976) develop a concept of avoidable mortality. In a more recent paper, Nolte and McKee (2004) produce an extensive literature review and a reconciliation of studies of mortality attributable to health care. Their review has served as a reference in over 200 economic and population health publications.

The strategy for selection of variables is the following: I consider all the standardised death rates and mortality measures available in WHO Health for All Database. Firstly, I exclude those that are unusable due to missing data. For the remaining ones, I refer to Nolte and McKee (2004) in search of relevance to hospital care. I pick the SDRs that are considered fully or partly a consequence of hospital care deficiencies, discarding ones not considered or confirmed as unrelated to hospitals. For the majority of disease categories, WHO HFA-DB provides standardised death rates in two ranges: ages 0-64 and all ages. For the current analysis, the former age range is generally preferred, following the observation that the majority of amenable causes' compilations put an age cap at each disease category, thus implying that beyond certain age patient death cannot be attributed to health care. However, in cases where no 0-64 range is available in the database, but the disease is considered avoidable, I opt for the all-ages measure. Furthermore, for categories such as adverse drug effects and ill-defined conditions, the all-ages

Table 5.6: Measures of mortality attributable to hospitals

No	Measure	ICD-10 category	Obs (% completeness)	Mean (st.dev) 1989	Mean (st.dev) 2009	1989 - 2009 change	References
	Infant and maternal deaths						
1	Infant deaths per 1,000 live births		432 (89%)	22.02 (9.92)	9.4 (4.91)	-57%	(2), (3), (4), (7), (8), (9)
2	Early neonatal deaths per 1,000 live births		444 (92%)	8.26 (2.32)	5.56 (4.05)	-33%	(2), (3), (4), (7), (8), (9)
3	Fetal deaths per 1000 births		420 (87%)	10.35 (3.84)	6.95 (3.08)	-33%	(2), (3), (4), (7), (8), (9)
4	Perinatal deaths per 1,000 births		428 (88%)	16.66 (4.28)	9.51 (4.59)	-43%	(2), (3), (4), (5), (7), (8), (9)
5	Maternal deaths per 100,000 live births	O00-O99	448 (93%)	46.03 (33.98)	24.47 (14.91)	-47%	(1), (3), (4), (6), (8), (9)
	Standardised death rates, disease-groups, per 100,000						
6	Diarrhoeal diseases, under 5 years	A00-A09	392 (81%)	27.37 (50.35)	2.01 (3.52)	-93%	(1), (2), (7), (8), (9)
7	Infectious and parasitic disease, all ages	A00-A99, B00-B99	425 (88%)	14.67 (8.97)	18.31 (8.83)	25%	(1), (2), (3), (4), (6), (7), (8), (9)
8	Tuberculosis, all ages	A15-A19, B90	422 (87%)	7.81 (2.85)	11.38 (6.43)	46%	(1), (3), (4), (7), (8), (9)
9	Malignant neoplasms, ages 0-64	C00-C97	426 (88%)	110.51 (16.3)	95.65 (9.62)	-13%	(1), (2), (3), (4), (5), (6), (7), (8), (9)
10	Malignant neoplasm female breast, ages 0-64	C50	426 (88%)	14.47 (2.81)	15.45 (2.27)	7%	(3), (6), (7), (8), (9)
11	Cancer of the cervix, ages 0-64	C53	423 (87%)	5.34 (2.02)	6.05 (1.69)	13%	(1), (2), (3), (5), (6), (7), (8), (9)
12	Blood and blood-forming organs, all ages	D50-D77	422 (87%)	1.21 (0.63)	0.81 (0.21)	-33%	(2), (4), (7)
13	Endocrine/nutrition/metabolic disease/disorder involving immune mechanism, all ages	E00-E90	425 (88%)	10.11 (4.91)	9.27 (5.81)	-8%	(2), (4), (7), (8), (9)
14	Diabetes, all ages	E10-E14	425 (88%)	9.01 (4.93)	8.32 (5.55)	-8%	(2), (4), (5), (7), (8), (9)
15	Mental disorder & disease of nervous system & sense organ, all ages	F00-F99, G00-G99, H00-H95	423 (87%)	10.92 (2.99)	14.63 (3.84)	34%	(2), (7), (9)
16	Diseases of circulatory system, ages 0-64	I00-I99	426 (88%)	156.78 (14.3)	169.96 (52.69)	8%	(1), (2), (3), (4), (5), (6), (7), (8), (9)
17	Ischaemic heart disease, ages 0-64	I20-I25	426 (88%)	80.36 (14.16)	84.01 (33.99)	5%	(2), (3), (7), (8), (9)
18	Cerebrovascular diseases, ages 0-64	I60-I69	426 (88%)	43.6 (9.16)	39.44 (14.48)	-10%	(3), (4), (5), (7), (8), (9)

(table cont'd)

22	Digestive system, all ages	K00-K93	425 (88%)	30.87 (14.08)	34.37 (12.39)	47%	(1), (2), (3), (4), (5), (6), (7), (8), (9)
23	Appendicitis, ages 0-64	K35-K38	371 (77%)	0.39 (0.12)	0.05 (0.05)	-86%	(2), (3), (4), (5), (6), (7), (8), (9)
24	Hernia and intestinal obstruction, ages 0-64	K40-K46, K56	390 (81%)	1.13 (0.27)	0.56 (0.2)	-51%	(1), (2), (3), (4), (5), (6), (7), (8), (9)
25	Genitourinary system, all ages	N00-N99	414 (86%)	13.66 (3.39)	8.26 (3.42)	-40%	(1), (2), (4), (7), (8), (9)
26	Symptoms, signs and ill-defined conditions, all ages	R00-R53, R55-R99	415 (86%)	16.11 (16.29)	49.76 (34.97)	209%	(2)
27	External cause injury and poison, all ages	V00-V99, W00-W99, X00-X99, Y00-Y99	425 (88%)	102.31 (26.05)	107 (41.96)	5%	(7)
28	Adverse effects of therapeutic agents, all ages	Y40-Y59	185 (38%)	0.12 (0.08)	0.06 (0.03)	-44%	(7)

All measures were obtained from and follow definitions in the WHO Health For All database.

Means are population-weighted, except for infant and maternal deaths that are weighted by the number of live births.

1989 - 2009 change is the percentage change in weighted regional means, calculated as (2009-1989)/1989.

References indicate studies that consider given disease category fully or partly amenable to hospital care:

(1) Charlton et al. 1983, Charlton et al. 1984

(2) Poikolainen & Eskola 1986, 1988

(3) Holland 1986, 1988, 1991, 1993, 1997

(4) Mackenbach et al. 1988

(5) Westerling 1993, Westerling et al. 1996

(6) Simonato et al. 1998

(7) Tobias & Jackson 2001

(8) Nolte et al. 2002

(9) Nolte & McKee 2004

measure is the preferred one. A summary of thus selected variables, along with supporting references and basic descriptive statistics, is provided in Table 5.6.

A caveat: this study does not aim at providing a complete and accurate account of untimely deaths in Eastern Europe. Instead, its primary interest is in identifying health outcome measures that are available and comparable across the region. The main objective of comparability is met as long as the same indicator is used for all country-year combinations, and is also facilitated by the fact that all HFA-DB mortality indicators are age-standardised. Consequently, analysing corresponding subsets of avoidable mortality is informative of systems' relative performance in the particular area, despite the fact it represents neither the remaining amenable causes nor the health outcomes at large.

HFA-DB variables that were left out include standardised death rates from transport and motor vehicle traffic accidents, suicide and self-inflicted injury, smoking and alcohol-related causes, homicide and intentional injury. While some of these causes can be linked to health care by arguing, for example, that a better organised hospital emergency system has a higher capacity to respond to accidents, measures are missing to control for the volume and composition of incidents. The differences in incidence rates and severity at presentation might stem from such factors as education, lifestyles, abidance of law, safety of the road system, as well as health policy and primary prevention, potentially leading to biased conclusions regarding health care itself (Treurniet et al. 1999). Also omitted in the analysis are trachea, bronchus, and lung cancer as well as chronic liver disease and cirrhosis, as attributable primarily to health education and primary prevention (Holland 1988, Holland 1991, Nolte et al. 2002). Neonatal, late- and post-neonatal deaths are excluded for largely incomplete data – in each case over 30% data points are missing, with some countries absent altogether. Finally, the SDR indicator "all causes, all ages" is discarded because it contains numerous causes strictly not attributable to health care.

It would seem appealing to substitute the discarded "all causes, all ages" with an aggregate indicator of total deaths across categories amenable to hospital care, hence allowing for the estimation of reform impacts on quantity of life proxy. However, this possibility is compromised by the extent of data missing. An aggregation would limit the number of observations to only those of which data points are available across all variables. In result, given that variables have different patterns of missing data, a summation of 23 SDR variables would generate an aggregate in which 341 out of 484 country-year observations (70%) are missing. This would have further consequences on the explanatory side of the model, resulting in a loss of some reform years. Even a limited aggregate variable consisting of IHD, hernia, diabetes, cerebrovascular diseases, breast cancer, appendicitis, and adverse therapeutic effects would result in an unbalanced panel of 173 observations, in which only 15 countries would be present, including two of only a single cross-section.

Another important matter in the selection of mortality variables is their relevance of hospital care, as opposed to primary care and public health, which may further vary between disease groups. For example, mortality from appendicitis is typically considered fully attributable to inpatient care and thus taken for an indicator of its quality. Tuberculosis, on the other hand, is primarily linked to public health, with only a fraction of mortality credited to hospitals. Tobias and Jackson (2001) consider 56 groups of conditions and provide their relative relevance to primary, secondary, and tertiary care. This proportional split has implications for the absolute numbers of deaths amenable to hospitals. Here, outcome variables are log-transformed, therefore assigning hospitals with a fixed proportion of mortality affects neither the statistical significance nor the estimated values of coefficients. However, it makes an implicit assumption that in every country secondary and tertiary inpatient care is accountable for the same percentage of mortality within a disease category. Arguably, in a country with strong prevention and high early detection rates, a higher share of mortality will rest with the hospital sector. The opposite is also true: weak primary care or public health increase the proportion of deaths these two areas are responsible for, concurrently decreasing the relative weight of hospitals. Given the scope of this study, no data can be applied to control for these factors across the board. Instead, the proportions are assumed to be constant in time and internationally.

A final consideration is given to the fact that mortality variables may not fully match the scope of disease defined in the referenced studies as attributable to hospital care. For example, in HFA-DB the category of infectious and parasitic diseases ranges from ICD-10 codes A00 to B99. On the other hand, the referenced materials qualify specifically: typhoid A01, shigellosis A03, intestinal/diarrhoeal infections A00-A09, tuberculosis A15-A19, brucellosis and other zoonoses A23-A27, tetanus A35, diphtheria A36, whooping cough A37, sepsis A40-A41, syphilis A50-53, gonococcal infections and other STDs A54-A64, poliomyelitis A80, viral meningitis A87, measles B05, rubella B06, viral hepatitis B15-B19, HIV/AIDS B20, malaria B50 (Alkaline Software online database was used for the reconciliation of ICD-9 and ICD-10 categories). It is apparent that the HFA-DB category is more broadly (or less specifically) defined; however, both definitions overlap to a large extent. In this and similar cases, the amenability to hospital care is assumed to apply in the broader group all the same.

5.4. Expected outcomes

5.4.1. Theoretical implications

Theoretical considerations presented in Chapter 4 indicate that changes in governance convey economic efficiency incentives, or enhance existing ones, and thus create conditions for higher performance. This is particularly true coming from the rigid, centralised Semashko system. Political discourse of the transformation period often involved this line of argumentation in support of decentralisation and privatisation. In fact, underlying actual reforms was the belief

that hospital governance reforms would facilitate the process of trimming the oversized and unwieldy hospital sector. Whether or not this has occurred is the research question in this chapter. However, "higher performance" and "improved economic efficiency" may imply a number of potential changes in inputs, processes, outputs and outcomes. Therefore, it has to be established how these improvements would translate into the available hospital sector parameters. For this purpose, specific hypotheses need to be formulated against each category of performance measures.

The burden of fixed costs has been a major problem of the post-communist inheritance. Coming from this background, the reforms would aim at catalysing the process of downsizing the hospital network, through facility decommissioning, re-qualification for other purposes, etc. Therefore, the numbers of facilities are expected to go down. The magnitude of this effect may hinge on the extent of decision authority transferred and incentives to carry out the rationalisation, for which ownership devolution and corporatisation should provide particularly favourable circumstances.

As for utilisation, for the same reasons, average lengths of stay are expected to diminish and bed occupancy rates to increase. Again, because of the strength of incentives for rationalisation, effects may be more apparent in the two aforementioned reforms (i.e. displaying higher statistical significance and/or greater absolute values of coefficients).

The effects on the numbers of hospital admissions are ambiguous, however. Firstly, numbers of admission should have the highest sensitivity to provider payment mechanisms, which convey "hard" economic incentives. This is not an issue, however, because provider payments are controlled for in the model. Secondly, any change in admissions, both positive and negative, may reflect adjustments in provision to better match local needs, preferences and priorities, an argument often raised as a merit of decentralisation. Thus, in terms of allocative efficiency, it cannot be determined whether fewer or more admissions represent a superior outcome. Other than this inconclusiveness, there is also a possibility of contradicting effects. Supposing constraints in supply of care are capacity-related (rather than of financial nature), organisational improvements may lead to higher across-the-board throughput – an important reform objective in the region with historically long wait times. However, elevated accountability and financial risk resting with territorial governments as founding bodies could induce stricter utilisation criteria.

Rationalising resource use and simultaneously improving health outcomes is a challenging task. In fact, in the mid-1990s, most CEE/CIS countries experienced a decline in the health status, albeit caused primarily by falling macroeconomic output and social distress. Health care reforms, programs and innovations do not, in principle, trade off health outcomes for cost-savings (admittedly, with the exception of frugal innovation and some acceptable interventions

falling into quadrant III of the cost-effectiveness plane). More likely, improved productive and allocative efficiency are converted into higher utilisation, better quality of care, or both. Thus, the expected coefficient signs in mortality models are non-positive, corresponding to a conservative anticipation of improvement or no impact.

A summary of expected signs of coefficients is provided in Table 5.7.

Table 5.7: Expected signs of coefficients

	Expected coef. sign		
Response variable or category	**mgmt**	**own**	**corp**
Facilities	-/0	-	-
Average lenghts of stay	-/0	-	-
Bed occupancy	+/0	+	+
Discharges	?	?	?
Infant and maternal deaths	-/0	-/0	-/0
SDRs	-/0	-/0	-/0

5.4.2. Do hospital reforms have implications for aggregate health expenditures?

Previous studies have included health expenditures (total, public, and private) among the endogenous variables. However, this poses a number of conceptual problems that altogether lead to forgoing the possibility in this study. Firstly, in the current specification, health expenditures stand for the level of system inputs, i.e. serve as an explanatory variable. An inclusion of its variant as the outcome variable would lead to the problem of endogeneity. Moreno-Serra and Wagstaff (2010) avoid this problem by using GDP p.c. as the system inputs' variable. However, the adequacy of this choice is debatable, especially given the availability of TEH p.c., which can be argued to better suit this purpose. Secondly, total health expenditures are largely exogenous to the hospital sector, determined mainly by the fiscal circumstances and the priority given to the HCS, as discussed in Chapter 1. This can be seen as an upper limit set for the sector expenditures. It is difficult to conceive how reforms internal to the hospital sector could influence these constraints. Thirdly, any cost-savings resulting from hospital reorganisation would unlikely take the form of lower sector expenditures. Given the chronic underfunding of health care in CEE/CIS, reflected among other things by low salaries, long waiting times, hospital indebtness, and capital underinvestment, any resulting surplus would be immediately relocated within the sector to cover alleviate a deficiency. Thus, it would leave no permanent effect on the aggregate expenditure. Fourthly, considering the low materiality of private hospitals and voluntary health insurance, it is difficult to justify a mechanism through which non-privatisation hospital reforms would lead to significantly changing public-private proportions of health expenditures.

5.5. Results and discussion of findings

5.5.1. Notes on the presentation of results

Estimation results, reported in Table 5.8 and Table 5.9, are provided in sub-sections corresponding to categories that dependent variables fall into: resources, utilisation/discharges, and mortality. The tables are organised in the following way: each row represents one model, in which the measure provided in the second column serves as the dependent variable. Given that all the performance indicators are modelled with a common set of independent variables (see Equation 3 and Table 5.1: Model specifications, by type of response measure), a model is identified by its response variable. For each model provided are parameter estimates of three variables that represent hospital governance transition: decentralisation of management, devolution of ownership, and corporatisation of facilities.

Each variable is described with four parameters resulting from the FD2 estimation. First, under the header "coef" is the reform variable coefficient. Second, the column "error" reports the robust standard error of the coefficient. Third, "p-value" is by definition the probability of obtaining the t-test statistic at least as extreme as observed, assuming that the null hypothesis $H_0: \beta = 0$ is true. Therefore, a more extreme t-test result (corresponding to a lower reported p-values) increases the likelihood that H_0 is false and in fact $\beta \neq 0$. Coefficients are presented with the usual indication of statistical significance, where "*", "**", "***" denote significance at the levels of 10%, 5%, and 1%, respectively. In the discussion, unless otherwise stated, these levels are described as weak evidence, evidence, and strong evidence, respectively. Since estimated models are numerous, for ease of browsing, these variables have been highlighted with varying shades of grey.

Finally, reported under the header "% impact" is the percentage change in y attributable to the reform dummy switching from 0 to 1, practically indicating the estimated impacts of respective hospital governance reforms. Reform (dummy variable) impact on the log-transformed outcome variable was calculated as impact $= 100 \times (e^{\beta} - 1)$, following a discussion by Halvorsen and Palmquist (1980). This is a dummy variable interpretation only; continuous variables read the usual way, that is, a switch from 0 to 1 effects in $100 \times \beta$ per cent change in y. Impact figures, same as coefficient estimates, correspond to the outcome variable at the sample mean. The approximation of $e \approx 2.718$ was used in the calculation of impact. Rounding of figures was applied after the impact calculations.

Table 5.8: Estimation results – hospital resources and utilisation

4	Acute care hospital beds	0.01	0.026	0.635	1.27	-0.01	0.019	0.793	-0.50	-0.03	0.019	0.112	-3.13	312	12.6%
5	Psychiatric hospital beds	0.01	0.040	0.755	1.26	0.04	0.039	0.316	4.07	0.05	0.033	0.182	4.64	351	8.8%
	Utilisation														
6	Average length of stay, all	0.01	0.009	0.431	0.74	0.01	0.009	0.304	0.91	-0.01	0.009	0.444	-0.71	417	10.1%
7	Average length of stay, acute	0.01	0.017	0.397	1.45	0.02**	0.010	0.037	2.29	0.05***	0.018	0.01	5.28	272	13.6%
8	Bed occupancy rate	0.02	0.022	0.447	1.74	0.05	0.035	0.158	5.38	0.08**	0.036	0.049	7.84	278	16.9%
9	In-patient care discharges	0.02	0.025	0.544	1.53	0.04**	0.016	0.016	4.22	0.04	0.022	0.114	3.72	412	14.4%
10	Acute care discharges	0.05	0.027	0.116	4.62	0.03	0.023	0.185	3.23	0.04	0.037	0.266	4.34	281	17.7%
11	**In-patient surgical procedures per year**	0	0.041	0.915	0.45	-0.01	0.039	0.739	-1.32	0.06	0.056	0.299	6.20	217	21.8%
	Disease-specific discharges														
12	Cerebrovascular	0.03	0.046	0.563	2.77	0.02	0.025	0.554	1.54	-0.01	0.032	0.824	-0.73	378	9.8%
13	Circulatory system	-0.01	0.030	0.855	-0.54	0.06**	0.028	0.039	6.31	0.04	0.047	0.398	4.10	383	17.2%
14	Digestive system	0	0.033	0.988	-0.05	0.04	0.026	0.146	4.01	0.05	0.033	0.171	4.75	384	12.6%
15	Infectious and parasitic	0.04	0.049	0.460	3.76	0.04	0.052	0.403	4.55	0.08*	0.045	0.093	8.19	381	13.5%
16	Injury and poisoning	0.02	0.039	0.530	2.49	0.06**	0.025	0.019	6.59	0.05*	0.029	0.083	5.49	383	10.0%
17	Ischaemic heart disease	0.02	0.047	0.639	2.25	0.07**	0.028	0.025	7.06	0.09*	0.05	0.078	9.73	373	13.7%
18	Musculoskeletal system and connective tissue	-0.03	0.039	0.517	-2.55	0.06	0.039	0.136	6.15	0.07	0.069	0.317	7.36	383	9.3%
19	Neoplasms, all	-0.03	0.031	0.286	-3.37	0.11**	0.051	0.043	11.53	0.06	0.048	0.227	6.14	381	17.2%
20	Respiratory system	0.01	0.039	0.867	0.66	0.03	0.038	0.487	2.70	0.03	0.054	0.613	2.82	381	20.9%

Table 5.9: Estimation results – measures of mortality

No	Model (dependent variable)	*Decentralised management* coef	error	p-value	% impact	*Devolved ownership* coef	error	p-value	% impact	*Corporatisation* coef	error	p-value	% impact	Obs	R^2
	Infant and maternal deaths														
1	Infant deaths	0.03	0.029	0.400	2.54	-0.07	0.055	0.241	-6.40	-0.1	0.114	0.373	-9.84	366	12.5%
2	Early neonatal deaths	0.09*	0.044	0.060	9.21	-0.01	0.068	0.850	-1.29	0.02	0.088	0.850	1.70	398	5.3%
3	Fetal deaths	-0.06*	0.029	0.068	-5.39	0.01	0.033	0.778	0.94	0.03	0.048	0.587	2.71	372	8.1%
4	Perinatal deaths	-0.02	0.034	0.627	-1.64	-0.01	0.047	0.790	-1.25	0.04	0.035	0.293	3.83	380	9.0%
5	Maternal deaths	-0.4*	0.199	0.058	-32.89	-0.03	0.222	0.879	-3.35	-0.07	0.361	0.845	-6.90	399	5.6%
	Standardised death rates														
6	Diarrhoeal	0.38**	0.138	0.011	46.66	-0.32	0.389	0.425	-27.11	-0.49	0.499	0.334	-38.98	298	13.4%
7	Infectious and parasitic	0.02	0.056	0.686	2.33	-0.04	0.060	0.474	-4.31	-0.15***	0.051	0.008	-13.86	354	9.4%
8	Tuberculosis	0.02	0.052	0.673	2.26	0.04	0.084	0.652	3.93	-0.03	0.087	0.745	-2.81	351	5.1%
9	Malignant neoplasms	0.01	0.011	0.646	0.53	0.01	0.012	0.487	0.86	0	0.026	0.956	0.14	354	9.0%
10	Malignant neoplasm female breast	0.01	0.041	0.791	1.09	0.09*	0.043	0.053	9.15	0.13*	0.066	0.060	13.90	354	13.0%
11	Cancer of the cervix	0.02	0.055	0.785	1.54	-0.03	0.070	0.725	-2.47	0.14**	0.058	0.023	15.18	350	11.8%
12	Blood and blood-forming organs	0.03	0.127	0.834	2.74	0.18	0.126	0.168	19.71	0.24*	0.117	0.052	27.16	351	8.0%
13	Endocrine/nutrition/metabolic disease/disorder involving immune mechanism	-0.02	0.029	0.521	-1.89	-0.02	0.055	0.688	-2.21	-0.06	0.084	0.500	-5.60	354	8.0%
14	Diabetes	-0.03	0.036	0.405	-3.00	-0.02	0.066	0.782	-1.83	-0.09	0.102	0.394	-8.52	354	8.8%
15	Mental disorder & disease of nervous system & sense organ	-0.09*	0.051	0.085	-8.77	0.02	0.036	0.589	2.00	-0.1	0.071	0.182	-9.33	352	17.7%
16	Circulatory system	0.03	0.021	0.170	3.07	0.05***	0.017	0.006	5.23	0.01	0.017	0.532	1.08	354	19.0%
17	Ischaemic heart disease	0.03*	0.018	0.062	3.53	0.01	0.019	0.531	1.22	0	0.016	0.787	0.43	354	19.2%
18	Cerebrovascular diseases	0.01	0.023	0.675	1.00	0.05**	0.022	0.034	5.10	0.02	0.039	0.576	2.24	354	10.1%

(table cont'd)

No	Model (dependent variable)	*Decentralised management* coef	error	p-value	% impact	*Devolved ownership* coef	error	p-value	% impact	*Corporatisation* coef	error	p-value	% impact	Obs	R^2
19	Acute respiratory infections, pneumonia and influenza	0.18	0.120	0.156	19.33	0.23	0.177	0.214	25.51	0.31	0.420	0.467	36.49	320	15.0%
20	Respiratory system	0.03	0.029	0.386	2.61	0.05	0.038	0.187	5.31	-0.01	0.049	0.850	-0.94	354	25.7%
21	Bronchitis/emphysema/asthma	0.06*	0.034	0.095	6.20	0.14***	0.038	0.001	15.13	-0.01	0.070	0.927	-0.65	325	17.1%
22	Digestive system	0	0.021	0.924	0.21	0.06**	0.027	0.034	6.32	0.01	0.029	0.612	1.48	354	11.7%
23	Appendicitis	-0.05	0.276	0.857	-4.89	-0.03	0.475	0.949	-3.04	0.16	0.381	0.685	16.95	287	6.1%
24	Hernia and intestinal obstruction	-0.04	0.088	0.632	-4.18	0.22**	0.094	0.026	25.11	0.38*	0.204	0.073	46.90	325	17.7%
25	Genitourinary system	0.04	0.031	0.212	4.03	0.04	0.032	0.177	4.58	-0.01	0.047	0.913	-0.53	344	7.9%
26	Symptoms, signs and ill-defined condition	0	0.072	0.958	-0.38	0.05	0.097	0.631	4.85	0.04	0.091	0.674	3.95	341	9.7%
27	External cause injury and poison	0.02	0.035	0.553	2.16	0.08*	0.041	0.052	8.76	0.04	0.057	0.501	4.01	354	5.3%
28	Adverse effects	0.11	0.402	0.782	12.06	-1.33**	0.553	0.035	-73.46	-0.64	0.646	0.341	-47.47	125	30.8%

5.5.2. Findings

Table 5.8 and Table 5.9 show estimation results of the base specification. A number of models provide strong evidence in support of the hypothesis that changes in hospital governance influence hospital sector performance. Transferring hospital ownership is the step that has the widest impact on outcome variables. Looking at groups of outcome measures, the statistical evidence tends to concentrate within the categories of utilisation and discharges as well as in standardised death rates.

Strong evidence shows that the corporatisation process induces a decline in numbers of hospitals (estimated reduction of 21.1%). In contrast, decentralising hospital management to sub-national governments coincides with a 6.7% increase in the number of acute care facilities.

Rather surprisingly, lengths of stay in acute care hospital episodes tend to increase following both devolution (by 2.3%) and corporatisation (5.3%). In accord with theoretical predictions, the latter leads to an increase in bed occupancy rates, by an estimated 7.8%. Devolved ownership resulted in an estimated 4.2% increase in the number of inpatient admissions. With respect to specific diseases, numbers of admissions went up in the categories of circulatory system (6.3%), injury and poisoning (6.6%), ischaemic heart disease (7.1%), and neoplasms (11.5%). Corporatisation seems to further drive up numbers of admissions; however, the statistical evidence on 5-10% increases in the categories of infectious/parasitic, injury/poisoning, and IHD is only weak.

At the same time, countries devolving hospital ownership tend to observe rises in death rates across a number of disease categories (ranging from 5.1% in cerebrovascular to 25.1% in hernia and intestinal obstruction). The statistical evidence is especially strong in case of the circulatory system diseases (99% confidence) and bronchitis/emphysema/asthma (99.9% confidence). The category of circulatory system diseases is particularly interesting, because it displays concurrent increases in the number of admissions (6.3%) and death rates (5.2%).

Reforms other than ownership devolution are somewhat less evidently tied to death rates, with coefficients significant at 5% in only three categories: cancer of cervix (+15.2%), diarrhoeal (+46.7%) and infectious/parasitic diseases (-13.9%). Moreover, there is weak and mixed evidence on changes in infant and maternal mortality: considerable reductions in maternal and fetal deaths are coupled with increase in early neonatal mortality. The overall infant mortality indicator is unaffected by any of the reforms.

While the governance reforms are found to predominantly enhance mortality, there are exceptions. The outcomes include strong evidence of 13.9% reduction in infectious/parasitic SDR and a notable 73.5% drop in SDR from adverse effects of therapeutic agents.

5.5.3. Discussion of findings

As surprising as it is in a region that endeavoured to liquidate some of its inpatient facilities, decentralisation of hospital management prompted an increase in the numbers of acute hospitals. This may indicate a reclassification of selected non-acute into acute care facilities, in the process of adjusting hospital networks to local needs. Rationalising networks by changing the purpose of hospitals would not be (and is not) reflected in the overall count of hospitals (Table 5.8, model 1). The statistical outcome may also account for newly constructed hospitals being handed over for local governments' supervision, as part of the infrastructure modernisation. However, under this scenario the overall number of hospitals would be expected to respond to the reform, which is not the case.

On the other hand, there is very strong evidence (99.9% confidence) linking corporatisation of acute care hospitals to a major 21% reduction in their numbers. Given that this reform has a record of being highly controversial in the region (including a recent public backlash in the Czech Republic and Poland) and that it typically involves extensive social and political negotiations, the green light for corporatisation step seems to be an opportune moment to carry out decommissioning of selected facilities. Moreover, corporatisation has been used as a tool for imposing financial discipline on hospitals prone to accumulating debt, e.g. in Poland (Klinger 2012). Under such a regulation, the financially sound hospitals are transformed into commercial entities, while the ones that do not manage to contain their debt are closed down. Thus, corporatisation directly causes or coincides with substantial reductions in hospital networks.

Given that hospital payment mechanisms are controlled for, increases in acute care average lengths of stay prove that decentralisation does not necessarily induce rationalisation through the shortening of hospitals episodes. There are a few possible explanations why ALOS would increase. One is an intensifying expectation of profitability that may lead hospitals to boosting their revenues by extending lengths of stay. In this case, increasing ALOS reflect the strength of profit-seeking. Considering that late stages of hospitalisation are typically characterised by low intensity of care, in contrast to the initial phase following admission (McKee 2004), elongated hospitalisation tails bring considerable revenues at little cost under provider payment arrangements that include a FFS component (e.g. per diem, bed days). Secondly, with greater autonomy and strengthened accountability comes the responsibility (financial, legal, political) for poor outcomes. Extending the lengths of hospital episodes may safeguard against potential adverse outcomes and their consequences, as a form of defensive medicine (Myers & Schroeder 1981). This line of reasoning is also supported with the finding of a 73.5% drop in deaths from adverse effects of therapeutic agents, a source of avoidable mortality that can be associated with medical errors. The same reforms do not seem to affect the broader (i.e. acute and non-acute) ALOS, perhaps because the statistical effect is watered down by the inclusion of long-term stay

hospitals in the outcome variable. Generally, both acute hospital numbers and acute ALOS respond to two out of the three reforms. No such relationship is detected with respect to the overall, acute and non-acute measures.

An increase in bed occupancy resulting from corporatisation is a welcome finding in the CEE setting characterised by inefficient use of resources and excess capacity. However, the reform steps preceding corporatisation are not confirmed to bring about similar improvements.

The evidence is strong on devolution leading to increased numbers of admissions, which is reflected both in the aggregate indicator of in-patient discharges and in a number of disease-specific indicators. Devolved ownership gives local governments the opportunity to carry out re-prioritisation of health care (as a whole and services relative to one another) and to introduce various organisational changes accordingly to their preferences. Additional local funding, capital investments, streamlined procedures, and facilitated access may explain the 4.2% increase in the number of inpatient admissions. However, also strong is evidence on the same reform leading to increased mortality of selected diseases, an effect that is highlighted by the context of generally downward mortality trends (Table 5.6: Measures of mortality attributable to hospitals). Juxtaposing the two findings may suggest that local governments try to alleviate deficiencies in accessibility of medical care (wait times) at the expense of quality. In the case of circulatory system diseases, for instance, increases in numbers of admissions and deaths rates are triggered simultaneously. Trading-off quality for higher accessibility, responsiveness or utilisation may be, ceteris paribus, a sign of adjusting health care provision to local voters' expectations and preferences.

The above finding is in line with that of Tiemann et al. (2012), who put payment incentives in the context of ownership in German hospitals. They observe that incentivising efficiency through DRG payments may lead to lower staffing levels and adversely affect quality of care, and the effect strengthens under stricter accountability arrangements. Therefore, pressures for efficient allocation, coupled with a transfer of financial and legal risk, ought to go hand in hand with intensified quality monitoring, in order to prevent compromising patient safety and deteriorating health outcomes. In CEE/CIS, quality assurance lags behind a prevalent shift toward case-mix payments (Rechel & McKee 2009, compare Appendix I, Table A.1).

Admittedly, given that the data are aggregated at the national level and analysed over a long term, quality may not be the only determinant of the measured outcomes. Over the course of 20 years other processes are likely to occur. For example, the accessibility and efficacy of primary and emergency care, shifts between inpatient and outpatient modes of treatment including the continuity of care, hospital case management pathways, and available treatments that are considered to be the standard of care, may all be subject to change. Such changes would influence the quantity and quality of the hospital case-mix as well as alter the hospitalisation

process. Therefore, the "quality interpretation" provided above, while consistent with the statistical findings, may not be exclusive as conditions change over time.

Finally, while not finding evidence for causation does not disprove its existence, there are reforms that failed the statistical significance tests despite being popularly believed to be means for the improved health care system performance. One such (lack of) finding is regarding the numbers of hospital beds, which show no effect of reforms despite the declared intentions of reformers regarding this matter. More interestingly, in the light of the statistical evidence, decentralisation of facility management made little difference in hospital operation as measured in this study. This does not come as a surprise. This stage is the least specifically defined and displays the greatest variety of forms across the region. Being ambiguous at the theoretical level, it cannot be expected to yield meaningful statistical evidence. Yet, another explanation is also conceivable: the reform design in the early years of transition involved only a simple delegation of tasks, and came without incentives that would induce local authorities to strive for a betterment of hospital care.

5.6. Alternative specifications

5.6.1. Estimation results

Estimation results of alternative model specifications are gathered in Table 5.10 and Table 5.11.

Quadratic time function

The quadratic time specification estimates largely correspond to the base model. While the values of most coefficient estimates are similar, higher statistical significance is detected in a number of cases. Sixteen variables are found to be statistically significant at a higher level, that is, previously not significant are now significant at 10% level, and respectively 10% at 5%, and 5% at 1%. Four coefficients found statistically significant in the base model are now insignificant, and further four have a reduced level of confidence. However, for the most part, the above changes result from slight differences in coefficients values or standard errors, and as a whole do not invalidate or alter the findings of the base model.

Unsurprisingly, the base model is superior to the quadratic time function model in terms of the explained proportion of outcome variation. A vector of year-dummy variables used in the base model imposes no functional form on the time variable; instead, it allows for each cross-section's individual intercept. The alternative fits a quadratic function of time using the least squares approach. In result, the average (across the estimated models) R^2 of the base specification is 0.13 (with the standard deviation of 0.055), while the quadratic time function formulation on the average explains 0.05 (0.03) of the variability.

Table 5.10: Estimation results, alternative models, hospital resources and utilisation

No	Model (dependent variable)	*Base model*			*Quadratic time f'n*			*Quadratic indiv trends*			*Fixed effects, cluster n*			*Lagged model, LAG(0)*			*Lagged model, LAG(1)*			*Alternative interpret*		
		mgmt	*own*	*corp*	*mgmt*	*own*	*corp*	*mgmt*	*own*	*corp*	*mgmt*	*own*	*corp*	mgmt	own	corp	mgmt	own	corp	mgmt	own	corp
	Facilities																					
1	Hospitals	0	0.03	-0.07	0	0.02	-0.08	0	0.03	-0.07	--	--	--	-0.02	0.02	-0.09	-0.04*	-0.03	-0.03	-0.01	0.03	-0.03
		(0.031)	(0.035)	(0.061)	(0.03)	(0.031)	(0.062)	(0.032)	(0.036)	(0.063)				(0.04)	(0.037)	(0.079)	(0.023)	(0.024)	(0.045)	(0.028)	(0.032)	(0.059)
2	Acute (short-stay) hospitals	0.06**	-0.06	-0.24***	0.07**	-0.06	-0.23***	0.06**	-0.06	-0.24***	--	--	--	0.06**	-0.09*	-0.28***	0	-0.07	-0.08	0.01	-0.02	-0.1
		(0.026)	(0.059)	(0.059)	(0.029)	(0.064)	(0.079)	(0.028)	(0.061)	(0.061)				(0.029)	(0.043)	(0.064)	(0.012)	(0.044)	(0.064)	(0.03)	(0.05)	(0.1)
3	Hospital beds	0	0.03	0.01	0	0.03	0.01	0	0.03	0.01	--	--	--	-0.03	0.02	-0.01	-0.06	-0.04	-0.03	-0.01	0.02	0
		(0.038)	(0.021)	(0.023)	(0.037)	(0.022)	(0.025)	(0.04)	(0.022)	(0.023)				(0.053)	(0.022)	(0.028)	(0.038)	(0.027)	(0.03)	(0.039)	(0.016)	(0.019)
4	Acute care hospital beds	0.01	-0.01	-0.03	0.02	-0.01	-0.02	0.01	-0.01	-0.03	--	--	--	0	-0.02	-0.06***	-0.03	-0.03	-0.04	0.01	-0.02	-0.04**
		(0.026)	(0.019)	(0.019)	(0.028)	(0.02)	(0.026)	(0.027)	(0.02)	(0.02)				(0.029)	(0.015)	(0.02)	(0.026)	(0.04)	(0.035)	(0.027)	(0.014)	(0.017)
5	Psychiatric hospital beds	0.01	0.04	0.05	0.01	0.03	0.04	0.01	0.04	0.05	--	--	--	-0.01	0.02	0.01	-0.06**	-0.06*	-0.06*	0.02	0.02	0.02
		(0.04)	(0.039)	(0.033)	(0.041)	(0.042)	(0.036)	(0.041)	(0.04)	(0.034)				(0.047)	(0.04)	(0.041)	(0.027)	(0.03)	(0.032)	(0.042)	(0.029)	(0.028)
	Utilisation																					
6	Average length of stay, all	0.01	0.01	-0.01	0.01	0.01	-0.01	0.01	0.01	-0.01	--	--	--	-0.01	0.01	-0.01	-0.04*	0.01	-0.01	0.01	0.01	0.01
		(0.009)	(0.009)	(0.009)	(0.009)	(0.008)	(0.009)	(0.01)	(0.009)	(0.009)				(0.016)	(0.015)	(0.013)	(0.023)	(0.013)	(0.016)	(0.007)	(0.01)	(0.012)
7	Average length of stay, acute	0.01	0.02**	0.05***	0.01	0.03***	0.05***	0.02	0.02**	0.05**	--	--	--	0	0.02	0.03*	-0.05	-0.01	-0.03	0.02	0	0.03*
		(0.017)	(0.01)	(0.018)	(0.017)	(0.006)	(0.015)	(0.017)	(0.01)	(0.018)				(0.022)	(0.012)	(0.018)	(0.028)	(0.011)	(0.022)	(0.016)	(0.014)	(0.016)
8	Bed occupancy rate	0.02	0.05	0.08**	0.02	0.06*	0.08**	0.02	0.05	0.08*	--	--	--	0.01	0.06**	0.08***	-0.03	-0.01	0	0.03	0.02	-0.05
		(0.022)	(0.035)	(0.036)	(0.016)	(0.03)	(0.034)	(0.023)	(0.037)	(0.037)				(0.029)	(0.025)	(0.025)	(0.033)	(0.029)	(0.032)	(0.028)	(0.034)	(0.08)
9	In-patient care discharges	0.02	0.04**	0.04	0.02	0.04***	0.04*	0.02	0.04**	0.04	--	--	--	0.01	0.04***	0.04	-0.01	0	0	0.01	0.03**	0.01
		(0.025)	(0.016)	(0.022)	(0.024)	(0.014)	(0.023)	(0.025)	(0.016)	(0.023)				(0.021)	(0.015)	(0.023)	(0.018)	(0.023)	(0.014)	(0.028)	(0.013)	(0.017)
10	Acute care discharges	0.05	0.03	0.04	0.04	0.03	0.05	0.04	0.03	0.04	--	--	--	0.03	0.02	0.04	-0.04	-0.02	0	0.03	0.02	0.01
		(0.027)	(0.023)	(0.037)	(0.031)	(0.02)	(0.038)	(0.028)	(0.024)	(0.038)				(0.027)	(0.019)	(0.034)	(0.023)	(0.028)	(0.021)	(0.031)	(0.017)	(0.025)
11	In-patient surgical procedures per year	0	-0.01	0.06	0	-0.01	0.07	0	-0.01	0.06	--	--	--	-0.01	0	0.04	-0.04*	0.03	-0.03	0.01	-0.04	-0.04
		(0.041)	(0.039)	(0.056)	(0.035)	(0.032)	(0.048)	(0.043)	(0.04)	(0.059)				(0.04)	(0.026)	(0.048)	(0.024)	(0.053)	(0.05)	(0.051)	(0.031)	(0.043)
	Disease-specific discharges																					
12	Cerebrovascular	0.03	0.02	-0.01	0.03	0.02	0	0.03	0.01	-0.01	--	--	--	0.04	0.01	0	0.03	0	0.01	0.03	0.03	-0.01
		(0.046)	(0.025)	(0.032)	(0.047)	(0.024)	(0.038)	(0.048)	(0.026)	(0.033)				(0.046)	(0.036)	(0.034)	(0.027)	(0.045)	(0.025)	(0.045)	(0.019)	(0.03)
13	Circulatory system	-0.01	0.06**	0.04	0.02	0.08**	0.06	-0.01	0.06**	0.04	--	--	--	-0.02	0.06	0.04	-0.03	-0.01	0.01	-0.01	0.04***	0
		(0.03)	(0.028)	(0.047)	(0.024)	(0.027)	(0.048)	(0.031)	(0.029)	(0.048)				(0.033)	(0.04)	(0.052)	(0.027)	(0.035)	(0.025)	(0.034)	(0.012)	(0.022)
14	Digestive system	0	0.04	0.05	0.02	0.05*	0.06	0	0.04	0.05	--	--	--	-0.03	0.03	0.02	-0.06*	-0.02	-0.05*	0	0.03	0
		(0.033)	(0.026)	(0.033)	(0.026)	(0.024)	(0.039)	(0.035)	(0.027)	(0.034)				(0.036)	(0.028)	(0.028)	(0.029)	(0.026)	(0.024)	(0.039)	(0.018)	(0.018)
15	Infectious and parasitic	0.04	0.04	0.08*	0.05	0.05	0.09**	0.04	0.04	0.08	--	--	--	0.05	0.03	0.05	0	-0.04	-0.05	0	0.03	0.06
		(0.049)	(0.052)	(0.045)	(0.049)	(0.034)	(0.041)	(0.051)	(0.054)	(0.046)				(0.035)	(0.034)	(0.041)	(0.054)	(0.062)	(0.04)	(0.062)	(0.041)	(0.042)
16	Injury and poisoning	0.02	0.06**	0.05*	0.02	0.07***	0.05*	0.02	0.06**	0.05*	--	--	--	0.03	0.07**	0.05**	-0.01	-0.01	-0.02	0.04	0.03	0.01
		(0.039)	(0.025)	(0.029)	(0.037)	(0.022)	(0.027)	(0.04)	(0.026)	(0.03)				(0.035)	(0.026)	(0.02)	(0.021)	(0.026)	(0.028)	(0.038)	(0.02)	(0.023)
17	Ischaemic heart disease	0.02	0.07**	0.09*	0.04	0.08***	0.1*	0.02	0.07**	0.09*	--	--	--	-0.03	0.07	0.06	-0.13	-0.03	-0.06	0.1	0.06	0.04
		(0.047)	(0.028)	(0.05)	(0.038)	(0.024)	(0.055)	(0.049)	(0.029)	(0.052)				(0.039)	(0.04)	(0.047)	(0.1)	(0.05)	(0.056)	(0.082)	(0.038)	(0.04)
18	Musculoskeletal system and connective tissue	-0.03	0.06	0.07	0	0.07**	0.08	-0.03	0.06	0.07	--	--	--	-0.06	0.07	0.07	-0.07**	0	0	-0.04	0.02	-0.02
		(0.039)	(0.039)	(0.069)	(0.025)	(0.028)	(0.073)	(0.041)	(0.04)	(0.072)				(0.041)	(0.05)	(0.06)	(0.029)	(0.042)	(0.039)	(0.05)	(0.028)	(0.029)
19	Neoplasms, all	-0.03	0.11**	0.06	-0.02	0.13***	0.08	-0.03	0.11**	0.06	--	--	--	-0.03	0.1	0.1*	0.02	-0.01	0.08	-0.05*	0.1**	0.04
		(0.031)	(0.051)	(0.048)	(0.035)	(0.046)	(0.053)	(0.033)	(0.052)	(0.05)				(0.055)	(0.058)	(0.052)	(0.057)	(0.036)	(0.051)	(0.031)	(0.036)	(0.035)
20	Respiratory system	0.01	0.03	0.03	0.05	0.05	0.04	0.01	0.03	0.03	--	--	--	0.02	0.01	0.02	0.03	-0.02	-0.01	0	0.03	-0.03
		(0.039)	(0.038)	(0.054)	(0.046)	(0.034)	(0.059)	(0.04)	(0.039)	(0.056)				(0.047)	(0.029)	(0.049)	(0.038)	(0.052)	(0.046)	(0.044)	(0.032)	(0.051)

Table 5.11: Estimation results, alternative models, measures of mortality

No	Model (dependent variable)	*Base model*			*Quadratic time f'n*			*Quadratic indiv trends*			*Fixed effects, cluster n*			*Lagged model, LAG(0)*			*Lagged model, LAG(1)*			*Alternative interpret.*		
		mgmt	*own*	*corp*	*mgmt*	*own*	*corp*	*mgmt*	*own*	*corp*	*mgmt*	*own*	*corp*	mgmt	own	corp	mgmt	own	corp	mgmt	own	corp
	Infant and maternal deaths																					
1	Infant deaths	0.03	-0.07	-0.1	0.03	-0.07	-0.11	0.03	-0.07	-0.1	--	--	--	0.02	-0.07	-0.07	-0.01	-0.01	0.07	0.02	-0.06	-0.07
		(0.029)	(0.055)	(0.114)	(0.032)	(0.054)	(0.122)	(0.03)	(0.057)	(0.117)				(0.032)	(0.061)	(0.095)	(0.027)	(0.033)	(0.054)	(0.031)	(0.056)	(0.101)
2	Early neonatal deaths	0.09*	-0.01	0.02	0.11**	0	0.03	0.09*	-0.01	0.02	--	--	--	0.1*	0.01	0.09	0.02	0.05	0.13	0.08	-0.04	-0.01
		(0.044)	(0.068)	(0.088)	(0.039)	(0.061)	(0.09)	(0.046)	(0.07)	(0.09)				(0.055)	(0.095)	(0.096)	(0.051)	(0.062)	(0.094)	(0.053)	(0.066)	(0.087)
3	Fetal deaths	-0.06*	0.01	0.03	-0.06**	0.01	0.03	-0.06*	0.01	0.03	--	--	--	-0.05	-0.03	-0.01	0.04*	-0.03	-0.04	-0.04	0.01	0
		(0.029)	(0.033)	(0.048)	(0.025)	(0.035)	(0.039)	(0.03)	(0.033)	(0.05)				(0.029)	(0.032)	(0.05)	(0.023)	(0.039)	(0.058)	(0.027)	(0.023)	(0.057)
4	Perinatal deaths	-0.02	-0.01	0.04	-0.01	-0.01	0.04	-0.02	-0.01	0.04	--	--	--	0.01	-0.01	0.07	0.06**	0.02	0.08	-0.02	-0.03	0.03
		(0.034)	(0.047)	(0.035)	(0.03)	(0.043)	(0.041)	(0.035)	(0.048)	(0.035)				(0.037)	(0.055)	(0.056)	(0.024)	(0.023)	(0.052)	(0.031)	(0.044)	(0.041)
5	Maternal deaths	-0.4*	-0.03	-0.07	-0.33	-0.01	-0.04	-0.4*	-0.04	-0.07	-0.25*	0.06	0.06	-0.25*	0.15	0.47	0.3	0.5*	1.05**	-0.37*	0.02	0.1
		(0.199)	(0.222)	(0.361)	(0.215)	(0.224)	(0.324)	(0.204)	(0.229)	(0.373)	(0.12)	(0.106)	(0.22)	(0.125)	(0.189)	(0.342)	(0.205)	(0.257)	(0.401)	(0.192)	(0.2)	(0.313)
	Standardised death rates																					
6	Diarrhoeal	0.38**	-0.32	-0.49	0.24	-0.33	-0.48	0.41***	-0.31	-0.54	0.17*	-0.2	0.04	0.35*	-0.41	-0.14	0.04	0.05	0.8	0.3*	-0.19	-0.23
		(0.138)	(0.389)	(0.499)	(0.206)	(0.445)	(0.475)	(0.145)	(0.402)	(0.511)	(0.09)	(0.256)	(0.57)	(0.181)	(0.308)	(0.608)	(0.228)	(0.452)	(0.592)	(0.152)	(0.323)	(0.478)
7	Infectious and parasitic	0.02	-0.04	-0.15***	0.02	-0.05	-0.15**	0.02	-0.04	-0.15***	--	--	--	0.04	-0.07	-0.11*	0.04	-0.04	0.1**	-0.01	0	-0.1
		(0.056)	(0.06)	(0.051)	(0.048)	(0.064)	(0.053)	(0.058)	(0.063)	(0.053)				(0.056)	(0.067)	(0.059)	(0.039)	(0.044)	(0.043)	(0.051)	(0.061)	(0.062)
8	Tuberculosis	0.02	0.04	-0.03	0.02	0.03	-0.04	0.02	0.04	-0.03	--	--	--	0.02	0.03	-0.01	0.02	-0.03	0.06	0	0.08	-0.01
		(0.052)	(0.084)	(0.087)	(0.045)	(0.072)	(0.076)	(0.055)	(0.087)	(0.09)				(0.061)	(0.076)	(0.083)	(0.046)	(0.052)	(0.066)	(0.046)	(0.077)	(0.078)
9	Malignant neoplasms	0.01	0.01	0	0.01	0.01	0	0	0.01	0	--	--	--	-0.01	0	0	-0.02	-0.01	0.01	0.01	0.01	-0.01
		(0.011)	(0.012)	(0.026)	(0.01)	(0.01)	(0.028)	(0.012)	(0.013)	(0.027)				(0.017)	(0.013)	(0.02)	(0.018)	(0.018)	(0.025)	(0.011)	(0.011)	(0.022)
10	Malignant neoplasm female breast	0.01	0.09*	0.13*	0	0.07*	0.13**	0.01	0.09*	0.13*	--	--	--	0.04	0.09*	0.16**	0.04	-0.01	0.04	0	0.08*	0.11*
		(0.041)	(0.043)	(0.066)	(0.032)	(0.038)	(0.06)	(0.042)	(0.044)	(0.068)				(0.052)	(0.051)	(0.064)	(0.039)	(0.044)	(0.047)	(0.031)	(0.048)	(0.057)
11	Cancer of the cervix	0.02	-0.03	0.14**	0.04	0.01	0.15**	0.02	-0.03	0.14**	--	--	--	0.01	-0.03	0.16**	0	0.02	0.06	0.03	-0.05	0.15***
		(0.055)	(0.07)	(0.058)	(0.047)	(0.063)	(0.052)	(0.059)	(0.072)	(0.06)				(0.05)	(0.082)	(0.066)	(0.044)	(0.111)	(0.106)	(0.047)	(0.064)	(0.055)
12	Blood and blood-forming organs	0.03	0.18	0.24*	0.03	0.18	0.23*	0.03	0.18	0.24*	0.03	0.13*	0.24***	-0.07	0.06	0.01	-0.12	-0.22*	-0.39**	0.04	0.12	0.16
		(0.127)	(0.126)	(0.117)	(0.128)	(0.109)	(0.124)	(0.13)	(0.132)	(0.121)	(0.065)	(0.07)	(0.074)	(0.113)	(0.121)	(0.109)	(0.082)	(0.113)	(0.181)	(0.12)	(0.101)	(0.112)
13	Endocrine/nutrition/metabolic disease/disorder involving immune mechanism	-0.02	-0.02	-0.06	-0.01	0	-0.04	-0.02	-0.02	-0.06	--	--	--	-0.02	-0.05	-0.08	0.02	-0.03	-0.02	-0.01	-0.06	-0.05
		(0.029)	(0.055)	(0.084)	(0.023)	(0.048)	(0.071)	(0.031)	(0.057)	(0.087)				(0.029)	(0.069)	(0.122)	(0.049)	(0.053)	(0.11)	(0.03)	(0.051)	(0.077)
14	Diabetes	-0.03	-0.02	-0.09	-0.02	0	-0.07	-0.03	-0.02	-0.09	--	--	--	-0.03	-0.05	-0.12	0.02	-0.04	-0.03	-0.02	-0.07	-0.06
		(0.036)	(0.066)	(0.102)	(0.029)	(0.058)	(0.087)	(0.038)	(0.068)	(0.106)				(0.035)	(0.086)	(0.153)	(0.046)	(0.058)	(0.125)	(0.036)	(0.064)	(0.096)
15	Mental disorder & disease of nervous system & sense organ	-0.09*	0.02	-0.1	-0.08	0.01	-0.11	-0.09*	0.02	-0.1	--	--	--	-0.03	-0.01	-0.09	0.12*	-0.04	0.01	-0.08*	0.01	-0.07
		(0.051)	(0.036)	(0.071)	(0.05)	(0.041)	(0.08)	(0.054)	(0.038)	(0.073)				(0.056)	(0.05)	(0.091)	(0.068)	(0.057)	(0.096)	(0.044)	(0.036)	(0.068)
16	Circulatory system	0.03	0.05***	0.01	0.04*	0.05**	0.01	0.03	0.05***	0.01	--	--	--	0.04	0.05**	0.04	0.02	0	0.05	0.03	0.05***	0.02
		(0.021)	(0.017)	(0.017)	(0.02)	(0.018)	(0.022)	(0.022)	(0.017)	(0.017)				(0.029)	(0.022)	(0.022)	(0.026)	(0.024)	(0.033)	(0.019)	(0.013)	(0.018)
17	Ischaemic heart disease	0.03*	0.01	0	0.05**	0.02	0.01	0.04*	0.01	0	--	--	--	0.04	0.02	0.03	0	0.01	0.04	0.03**	0.02	0.01
		(0.018)	(0.019)	(0.016)	(0.017)	(0.02)	(0.022)	(0.018)	(0.02)	(0.016)				(0.027)	(0.022)	(0.022)	(0.033)	(0.025)	(0.043)	(0.016)	(0.018)	(0.016)
18	Cerebrovascular diseases	0.01	0.05**	0.02	0.02	0.05**	0.03	0.01	0.05**	0.02	--	--	--	0.03	0.05*	0.07*	0.04	0	0.09**	0.02	0.04*	0.02
		(0.023)	(0.022)	(0.039)	(0.02)	(0.02)	(0.039)	(0.024)	(0.023)	(0.04)				(0.03)	(0.025)	(0.039)	(0.027)	(0.031)	(0.033)	(0.022)	(0.02)	(0.035)

(table cont'd)

No	Model (dependent variable)	*Base model*			*Quadratic time f'n*			*Quadratic indiv trends*			*Fixed effects, cluster n*			*Lagged model, LAG(0)*			*Lagged model, LAG(1)*			*Alternative interpret*		
		mgmt	***own***	***corp***	***mgmt***	***own***	***corp***	***mgmt***	***own***	***corp***	***mgmt***	***own***	***corp***	**mgmt**	**own**	**corp**	**mgmt**	**own**	**corp**	**mgmt**	**own**	**corp**
19	Acute respiratory infections, pneumonia and influenza	0.18	0.23	0.31	0.17	0.23	0.32	0.18	0.23	0.31	0.14	0.16	0.14	**0.25***	0.19	0.41	0.12	-0.13	0.17	0.18	0.21	0.26
		(0.12)	(0.177)	(0.42)	(0.112)	(0.187)	(0.424)	(0.125)	(0.184)	(0.436)	(0.082)	(0.127)	(0.286)	**(0.127)**	(0.188)	(0.414)	(0.086)	(0.148)	(0.204)	(0.116)	(0.154)	(0.347)
20	Respiratory system	0.03	0.05	-0.01	0.02	0.06	0.02	0.03	0.05	-0.01	--	--	--	0.04	0.02	0	0.04	-0.05	0.03	0.03	0.05	-0.01
		(0.029)	(0.038)	(0.049)	(0.034)	(0.045)	(0.052)	(0.03)	(0.039)	(0.051)				(0.031)	(0.038)	(0.045)	(0.034)	(0.045)	(0.057)	(0.025)	(0.034)	(0.044)
21	Bronchitis emphysema asthma	**0.06***	**0.14*****	-0.01	0.04	**0.11****	0.01	0.06	**0.14*****	0	--	--	--	0.04	0.06	-0.08	-0.01	**-0.15****	-0.1	**0.06****	**0.14*****	0.02
		(0.034)	(0.038)	(0.07)	(0.029)	(0.04)	(0.059)	(0.036)	(0.039)	(0.073)				(0.031)	(0.039)	(0.062)	(0.064)	(0.058)	(0.074)	(0.023)	(0.038)	(0.066)
22	Digestive system	0	**0.06****	0.01	0	**0.06****	0.01	0	**0.06****	0.01	--	--	--	0.03	**0.06***	0.05	**0.04***	0	0.06	0	**0.05****	0.03
		(0.021)	(0.027)	(0.029)	(0.022)	(0.024)	(0.031)	(0.022)	(0.028)	(0.03)				(0.023)	(0.035)	(0.049)	(0.022)	(0.035)	(0.064)	(0.019)	(0.021)	(0.025)
23	Appendicitis	-0.05	-0.03	0.16	-0.07	-0.08	0.01	-0.05	-0.04	0.15	0.03	0.07	-0.01	0.24	0.42	0.47	0.36	0.79	0.14	-0.06	0.06	0.23
		(0.276)	(0.475)	(0.381)	(0.248)	(0.486)	(0.407)	(0.29)	(0.499)	(0.398)	(0.176)	(0.272)	(0.305)	(0.283)	(0.465)	(0.474)	(0.382)	(0.46)	(0.592)	(0.251)	(0.368)	(0.371)
24	Hernia and intestinal obstruction	-0.04	**0.22****	**0.38***	0	**0.22****	**0.31***	-0.04	**0.23****	**0.39***	-0.06	0.11	0.24	-0.07	0.09	0.26	-0.04	-0.27	-0.19	0.01	**0.17***	**0.35***
		(0.088)	(0.094)	(0.204)	(0.097)	(0.094)	(0.17)	(0.091)	(0.098)	(0.21)	(0.066)	(0.072)	(0.147)	(0.118)	(0.162)	(0.179)	(0.091)	(0.199)	(0.212)	(0.084)	(0.091)	(0.187)
25	Genitourinary system	0.04	0.04	-0.01	0.03	0.04	-0.01	0.04	0.05	0	0.02	0.02	-0.03	0.04	**0.06****	0.03	0	0.04	**0.08***	0.04	0.02	0.01
		(0.031)	(0.032)	(0.047)	(0.03)	(0.031)	(0.049)	(0.032)	(0.034)	(0.049)	(0.031)	(0.02)	(0.046)	(0.028)	(0.024)	(0.046)	(0.029)	(0.047)	(0.039)	(0.032)	(0.024)	(0.042)
26	Symptoms, signs and ill-defined condition	0	0.05	0.04	-0.01	0.06	0.09	0	0.05	0.04	--	--	--	0	-0.02	-0.04	-0.01	-0.17	-0.15	-0.03	0.03	-0.02
		(0.072)	(0.097)	(0.091)	(0.068)	(0.087)	(0.086)	(0.074)	(0.101)	(0.093)				(0.072)	(0.113)	(0.099)	(0.111)	(0.109)	(0.097)	(0.066)	(0.079)	(0.101)
27	External cause injury and poison	0.02	**0.08***	0.04	0.02	**0.09****	0.04	0.02	**0.08***	0.04	--	--	--	0.04	**0.08***	0.03	0.03	-0.01	-0.02	0.01	**0.07***	0.04
		(0.035)	(0.041)	(0.057)	(0.036)	(0.033)	(0.055)	(0.037)	(0.042)	(0.059)				(0.039)	(0.044)	(0.071)	(0.05)	(0.045)	(0.047)	(0.029)	(0.037)	(0.053)
28	Adverse effects	0.11	-1.33**	-0.64	-0.11	**-0.98***	-0.59	0.14	-1.13*	0.09	0.33	**-0.79***	-0.59	0.02	**-1.67*****	-1.17	0.17	-0.01	-0.56	-0.08	-0.93	-0.33
		(0.402)	(0.553)	(0.646)	(0.516)	(0.474)	(0.419)	(0.43)	(0.535)	(0.496)	(0.328)	(0.416)	(0.581)	(0.657)	(0.508)	(0.69)	(0.471)	(0.666)	(1.018)	(0.47)	(0.521)	(0.673)

Quadratic individual country trends

The estimation results remain virtually unchanged after the introduction of the individual trend square component. The shifts between detected levels of statistical significance are generally a consequence of small movements in coefficient and error values in variables that were originally close to 1%, 5%, and 10% significance thresholds. For instance, the estimated impact of corporatisation on bed occupancy rates originally estimated 0.08 (0.036 standard error) and significant at 5%, in the alternative model resulted 0.08 (0.037 std. err.) and qualified as significant at 10%. Admittedly, in a number of cases this specification fails to detect statistical significance established by the base model (e.g. maternal deaths, diarrhoeal SDR, mental disorder SDR), but only in the cases where the evidence was weak in the first place (p-values close to 10% in the base model). On the other hand, a number of coefficient estimates turn out significant at higher levels of confidence. The greatest noted difference between coefficient estimates was in the case of adverse therapeutic effects SDR, originally -1.33 significant at 5%, now -1.13 significant at 10%. The patterns of reform impacts, that is, coefficients' signs and statistical significance, remain broadly unchanged. This confirms the stability of results and informally corroborates the base model findings, by refuting the possibility that an important effect of non-linear individual trends was neglected.

Across all the models, the second order individual trend variables are found significant with 95% confidence in 412 out of 1088 (37.9%) estimated cases. A contribution towards the explanatory power is represented by the new average R-squared of 0.137 (0.06 std. dev.) as opposed to 0.13 (0.055) in the base model.

Fixed Effects estimation

Comparing the fixed effects and the base model results displays a number of similarities as well as differences. The broad results are alike – allowing for 90% confidence level, in 7 out of eight models' corresponding coefficients are found significant. On the other hand, the FE magnitudes of reform impacts tend to be lower. For example, the estimated impacts of decentralisation on mortality are -22.1% for maternal deaths (-32.9% in the base model) and +18.5% in diarrhoeal diseases SDR (originally +46.7%). The reduction in mortality from adverse effect of therapeutic agents is now 54.6% rather than 73.5%.

The limited number of models that can be estimated using both methods limits the scope of the comparison. However, the available models give an idea about the methods' compatibility. While there may be differences in the estimated size of impacts, the patterns of coefficient signs and significance are closely matching.

Lagged effects

The model detects a number of lagged reform effects. At the 5% significance level, these include numbers of psychiatric hospital beds, musculoskeletal system discharges, perinatal and maternal deaths, as well as SDRs of the following categories: infectious/parasitic, cerebrovascular, bronchitis/asthma, and blood and blood-forming organs. (Further eight outcome variables responded to one or more reform at the 10% level of significance.) In addition, the modified specification alters some non-lagged coefficient estimates. Notably, the extended specification shows a highly significant, corporatisation-induced reduction in numbers of acute care hospital beds. Moreover, in selected models, the evidence of the reforms' impacts is stronger than in the base model in terms of statistical significance: this concerns bed occupancy rates, inpatient care admissions, injury/poisoning admissions, and a few SDR indicators. Bed occupancy rates are now also found to increase in response to ownership devolution. At the same time, this specification does not support the previous evidence in a few non-lagged coefficients, e.g. acute care ALOS, circulatory system, IHD and neoplasm admissions as well as SDR bronchitis/asthma and hernia.

Alternative interpretations of institutional arrangements

Compared to previous alternative specifications, estimation outcomes of the alternative reform interpretation depart further from the base model. The main differences materialise in the categories of facilities, utilisation, and disease-specific discharges. The effect on numbers of acute care hospitals disappears. Corporatisation now reduces numbers of acute care beds. Moreover, there is no evidence on corporatisation-induced increase in bed occupancy rates, and the evidence of its impact on ALOS is weak. Also, to a lesser than previously extent supported are increases in numbers of disease-specific discharges. As far as mortality indicators are concerned, the patterns of reform impact remain largely unchanged, with a few coefficients significant at a lower level of confidence.

In recognising these discrepancies, it has to be taken into account that estimated here is an extreme case scenario in which all the considered ambiguities result different from the base model. While there is a risk of interpretation inaccuracies, and this section aims to quantify its potential consequences, it is unlikely that all the original interpretations are wide of the mark. In a sense, presented here is the extreme case scenario. Should some but not all of the considered cases be incorrect, it is plausible that the outcomes would to a smaller extent depart from the base model.

The above proposition could be verified in a statistical exercise where all combinations of reform interpretations are estimated, with a possible weight-based distinction between more and less likely scenarios. The outcome statistics of this quasi Monte Carlo experiment could be then

tested for equality to respective base model estimates. However, given complexity of this procedure (the numbers of models and alternative scenarios, also considering the statistical tool limitations) and the lack of actual necessity, this exercise is not carried out.

Finally, similar uncertainty surrounds the codification of provider payments. This topic has been explored by Moreno-Serra and Wagstaff (2010) in a dedicated paper.

5.6.2. Discussion of robustness

The base model specification and its estimation technique are justified as a solution that brings together theoretical considerations, econometric soundness, and study feasibility. In order to confirm its desired characteristics, the original specification was verified against a number of alternative approaches.

The form in which the trend of outcome measure is incorporated in the model (as a quadratic function or non-parametrically) has no considerable effect over results. Similarly, the base model findings withstand the verification against a quadratic specification of the individual trend. While the alternative model does not rule out the possibility of endogeneity, this observation informally corroborates the base model outcomes are not compromised by the linear trend assumption. In the few models where the fixed effects estimation is feasible, the patterns of reform impacts are generally confirmed despite some discrepancies in the magnitude of coefficients. The lagged model supports the possibility of delayed reform effects and while in a few cases it displays statistical evidence varying from the base model, for the most part the results are comparable. The alternative interpretation of reforms produces outcomes that diverge to a somewhat larger extent. Nevertheless, the evidence on the reforms' effects in the respective areas of performance is still present. Moreover, the estimation results represent an unlikely case in which occur all the possible variable alterations, and all the ambiguous situations are assigned their alternative interpretation.

Overall, the base model outcomes hold well in providing evidence of hospital governance reforms having material impact on the sector performance. Despite some differences between the base and alternative specifications, the general patterns of reform impacts are consistent across the inspected models. The robust evidence includes the instances of (a) numbers of acute care hospitals, (b) utilisation (ALOS in acute care, numbers of inpatient admissions), (c) discharges in a number of categories (circulatory system, injury/poisoning, neoplasms), (d) death rates from several diseases (diarrhoeal, infectious/parasitic, cancer of cervix, circulatory system, cerebrovascular diseases, bronchitis/asthma, digestive system, hernia), and (e) reduced mortality from adverse effects of therapeutic agents.

5.6.3. Other study limitations

The methods employed in the study enable a statistical measurement of the impacts that changing governance has had on hospital performance. However, the approach is not without its limitations. A model approach by definition simplifies reality. The grouping of institutional settings into strictly defined categories is necessary, but may be overly simplifying, given that similar conceptual reform models, when put into operation, may turn out qualitatively distinct between countries. The issue of varying reform quality was explored in Chapter 2.6 and illustrated in Chapter 5.3.1 with contrasting levels of case-mix system refinement in Armenia and Hungary. Certainly, there are qualitative differences between countries that constitute the unexplained portion of variation and, if accounted for, could potentially detect further effects of reforms. These areas include non-pecuniary incentives, detailed sector regulation, quality of physician education, work ethos, risk factors, health care seeking behaviour, etc.

In particular, applying the same specification to modelling physical resources, utilisation, and mortality (albeit with some flexibility in the choice of control variables) demands a considerable degree of model generality. This results in rather low proportions of explained variability: 0.13 on the average with a standard deviation of 0.055. The maximum R^2 of 0.308 is achieved is the case of adverse effects SDR, and the minimum is 0.05 for tuberculosis SDR.

Moreover, the study is subject to some general problems of international comparison, discussed by Newhouse (1977). These problems include imperfectly matching definitions and a degree of arbitrariness in currency conversions, both of which may introduce measurement bias. Data quality is another area of concern. HFA-DB collects datasets created by countries independently. Consequently, the quality of data collection and processing may vary substantially. In the extreme case of Turkmenistan, the data reported to international organisations are assessed as altogether unreliable (Rechel & McKee 2007).

5.7. Conclusions

In this chapter, the steps proposed in the conceptual model of CEE/CIS hospital sector transition (Chapters 3 and 4) were codified and factored as exogenous variables into an econometric model, in order to verify their impacts on selected performance measures. Controlling for other factors that contribute to outcome variation, the study provided evidence that the governance setting is indeed a relevant determinant of the system operation.

More specifically, devolution of hospital ownership to local governments appears to be the most impactful of the three reform stages, leading to increased utilisation (acute care ALOS, inpatient aggregate admissions, admission within the categories of circulatory system, injury/poisoning, IHD, neoplasms) as well as to increases in standardised death rates (circulatory system,

cerebrovascular diseases, bronchitis/asthma, digestive system, hernia and intestinal obstruction). It also results in a significant reduction in mortality from adverse effects of therapeutic agents.

Corporatisation of hospitals has further effects on performance, including a reduction in numbers of acute care hospitals, a rise in acute ALOS, an increase in bed occupancy rates, a reduction in mortality from infectious and parasitic diseases, and an increase in mortality from cancer of cervix.

The early transition stage of facility management decentralisation seems to have less of an effect on hospital operation, perhaps because the nature of this change is less specifically defined and, when taking a form of task delegation, conveys less powerful efficiency incentives. Even so, this stage was detected a statistically significant predictor of numbers of acute care hospitals and mortality from diarrhoeal diseases.

Given the CEE/CIS problems with overcapacity, low efficiency, and limited access to care, the main question regarding any reform is whether it induces improvements in these areas. As far as hospital governance is concerned, the answer is not straightforward. On one hand, there is no apparent reduction in numbers of hospital beds, and average lengths of hospital episodes tend to increase. On the other, corporatisation can be linked to higher bed occupancy rates, and alternative specifications also show this being the in case after devolution.

More likely than capacity reductions, the process of decentralisation and autonomisation may lead to adjusting health care provision to local needs. Given the prohibitively long wait times being both a major issue and a source of low satisfaction with public health care, an expected response of local governments endowed with inpatient facilities is to provide greater accessibility and throughput. However, keeping up with the demand under the financial and organisational constrains may only be possible by lowering the quality of services. This interpretation is in line with the evidence of higher utilisation accompanied by increased mortality. The problem has been signalled in the literature. Preker et al. (2002) explain that "providers faced with enormous expectations and demand from the population often find it easier to allow the quality of services to deteriorate – through drug shortages, equipment breakdowns, depreciation of capital stock and lowering of hygiene standards – than to make politically and ethically difficult rationing decisions". This explanation reflects well the reality of CEE/CIS, and is confirmed with the results of this study.

Rather surprising is the finding of average lengths of hospital episodes increasing with the reforms of ownership and corporatisation, by 2.3% and 5.3%, respectively. While a popular decentralisation-related argument might point at local authorities' preference for longer stays, it is rather unlikely to occur in the setting of already heavy reliance on inpatient care and tight financial constraints of hospital operation, reflected in common debt accumulation. An

alternative explanation is that decentralised networks may empower doctors with more decision-making authority. This influence may result in longer episodes requested out of genuine concern for patients' health status as well as supplier induced demand (possibly encouraged with informal payments). Moreover, the greater autonomy and responsibility for health outcomes may lead to defensive strategies of local authorities, hospital managers, and individual physicians. Devolution of ownership detaches territorial hospitals from the state-owned pool of providers, increasing the risks related to their activity, while autonomisation and corporatisation pushes provider responsibility even further. This element of risk bearing may predispose providers to extend lengths of hospital episodes in order to prevent adverse health events. While in CEE/CIS the matters of patient empowerment and providers' legal responsibility for medical errors are still at the outset, reputational damage may have all sorts of negative consequences for the facility stakeholders, including political consequences of the founding body, decreased institutional prestige, and lowered priority in future reorganisations or reductions. Whichever reasons motivated the providers' behaviour in this respect, the reforms did not provide the conditions for reduced ALOS in acute care.

Two lines of policy implications stem from the above discussion. The first one relates to the fact that decentralisation and corporatisation provide meaningful changes in the hospital sector. However, the adjustments may be different from those assumed by the central policy makers. It is a feature of decentralised systems that they make actors respond to their local circumstances. These are largely determined by high powered financial incentives, and the level of accountability, to central authorities but also to local voters.

The other implication concerns health care quality. An existence of a gap between resources and needs puts pressure health professionals, health care organisations as well as territorial governments, which are involved as owners and thus can be regarded indirect providers of medical care. This pressure for keeping up with the needs may compromise quality. Therefore, a stronger incentivisation of actors requires precautionary measures that will safeguard patients' health risk levels. There are two key components to managing this risk. First, quality can be seen as one of the health care production parameters, and has to be set explicitly according to the medical practice and stakeholders' preferences. Second, set levels of quality have to be warranted by an effective system of quality monitoring and enforcement.

PART III:
ACCESSIBILITY OF CARE IN CENTRAL-EASTERN EUROPE

Chapter 6:
Unmet medical needs and health care accessibility in seven CEE countries

6.1. Introduction

Access is the first and critical prerequisite for providing an adequate response to a health care need at any given level of care. In the case of primary care, it creates an opportunity for a medical professional to assess the urgency and severity of the need, allowing for prioritisation of further actions towards best health outcomes and containment of costs. Access to secondary care enables a specialist examination and an adequate medical intervention, thus maximising the effects of treatment. Timely tertiary care is often life-saving. It naturally follows that ensuring access to health care is a matter of priority in any patient-oriented health care system. The OECD (2004) identifies access as a key attribute of high-performing health care systems, on a par with efficiency, quality, responsiveness, affordability and financial sustainability.

Seven new EU member countries of Eastern Europe (CEE7) studied in this chapter enjoy comparable levels of macroeconomic and socio-demographic parameters, and share a history of achievements in institutional development. They also form a cluster of post-communist welfare states that, among other things, provide nearly universal coverage by the means of statutory social health insurance (Fenger 2007). Their present health care systems originated from the Soviet Semashko model operated before 1989, in which equitable and virtually unrestricted access to care was a cornerstone assumption. The period of transition brought a number of fundamental changes to health care in the region, including a shift from the integrated, state-run system towards more decentralised, pluralistic and contract-based systems. Despite favourable trends in overall health outcomes (Stillman 2006), issues in accessing care intensified and persisted, remaining a major source of dissatisfaction. The problem is politically pressing, as these populations have a historically built expectation of universal availability of health care procured by a paternalistic state (Kornai & Eggleston 2001b).

Despite the shared historical background of CEE7, the choice of strategies for health care transition resulted in various levels of achieved system performance. This study aims to provide comparative evidence on the magnitude of difficulties in accessing health care and their socio-economic determinants. The comparative perspective is emphasised because for historical and macroeconomic reasons the countries constitute a peer group that is relevant for benchmarking of economic performance. Within-region studies have the capacity to identify best performers and illustrate the (wasted) potential of laggards. In so doing, these studies are more meaningful than somewhat abstract comparisons between the transition and industrialised countries. The evidence should provoke a discussion on the institutional design of the health care systems, leading to policy-relevant conclusions regarding gaps in coverage and the adequacy of health care funding mixes presently applied in the region. This has further implications for broader social policy, as inequalities of health and health care access form part of a bigger picture of growing economic differences in Eastern European countries, along such dimensions as gender, age, region and labour force status (Heyns 2005).

6.2. Implications of unmet medical needs

Barriers to accessing health care take various financial and non-financial forms. Financing constraints relate to both public and private spheres, leading to excessive waiting times in the former and affordability issues in the latter. Relevant to securing an adequate level of access to health care are comprehensiveness of insurance coverage, the degree of cost-sharing, non-financial factors such as information, education and geographical distribution of providers, an adequate structure of the supply side (including informal care) and availability of modern technology (OECD 2004). Social factors such as education and occupation have also been shown to affect health status in various direct and indirect ways, including exposure to environmental risk factors, risky behaviours, and affecting the capacity to access and benefit from health care (Adler & Newman 2002). Since the 1960s, developments in behavioural models of health services' use have increasingly emphasised various simultaneous interactions between these factors (Andersen 1995). To the extent that access is a prerequisite for utilisation, inequitable access to health care escalates the inequality of utilisation, and in consequence – of health.

The terms "access", "need" and "equity" are inevitably entangled in the area of health and health care. Wagstaff and Doorslaer (2000) explore definitional complexities by reviewing a number of concepts of access that emerged in the literature. Two of them have proven contentious, namely, the extent to which access to care is synonymous to receipt of treatment, and whether or not time and money costs of access should be considered in the context of the individual ability to pay. These questions have their natural consequence for the notion of equity.

In the search for a practical principle of equity, strong arguments were formulated in favour of the equity of access principle, and against the impracticality of equity of health in setting policy goals (e.g. Mooney et al. 1991, Mooney et al. 1992). In fact, equal access for equal need appears to have become the prevalent, "working" interpretation. Other notable definitions of equity of access refer to the concepts of utilisation (consequently, the terms access and utilisation are sometimes used as synonyms), costs incurred in receiving care, maximum attainable consumption, and forgone utility (Culyer & Wagstaff 1993).

Goddard and Smith (2001) describe access to health care as the ability to secure a specified set of healthcare services, at a specified level of quality, subject to a specified maximum level of personal inconvenience and cost, while in possession of a specified amount of information. The distinction between access and utilisation is also made by Culyer and Wagstaff (1993) who propose that "equity of access is all about equity of opportunity". "Potential access" is converted into "realised access" by the individual making an utilisation decision, often under the physician's guidance (Aday & Andersen 1981). The definition of access as "potential utilisation" seems to conform to the explanation behind the question of unmet medical needs in the European Union Statistics on Income and Living Conditions (EU-SILC) survey (Eurostat 2009). This difference is also recognised by the WHO definition that considers access to health services "a measure of the proportion of a population that reaches appropriate health services" (Roberts 1998). The WHO definition appears the most appropriate for this study, as it puts the emphasis on the inequality of access between different groups of individuals according to geographical, social and medical criteria, and by recognising that access to services does not equate their utilisation. Analogous subtleties surround the idea of need, which integrates the individual's pre-treatment state of health and his or her capacity to benefit from health care (Oliver & Mossialos 2004).

The concept of access also has its cultural connotations. In the US it primarily concerns insurance coverage and is rather distinct from the European egalitarian view. The latter is applicable to the welfare states of CEE, where access to health care is seen as a citizen's right and related to the occurrence of need. This is in contrast to the libertarian view of health care as a reward, linked to the ability and willingness to pay (Wagstaff & Doorslaer 2000). This has further economic implications, because the insurance coverage is not a sufficient condition of access. In fact, universal or nearly universal coverage exposes other factors that restrict access, such as rationing and social inequalities (Goddard & Smith 2001).

Within the European welfare tradition there also exist differences; in particular, a distinction has to be made between the National Health Service (Beveridge) and the Social Health Insurance (Bismarck) models. In the former, access may be considered a matter of care supply, as in "the level of service which the health care system offers the individual" (Goddard & Smith 2001).

This integrative definition entangles two aspects distinct from the perspective of contract-based systems – provision and financing – both being potential sources of access limitations. In fact, in CEE, problems with health care access are often a consequence of insufficient funding rather than of inadequate provider capacity.

This study relies in part on an analysis of unmet needs reported by individuals. The central theoretical question is therefore how information about unmet medical needs can be translated into broader conclusions regarding health care accessibility. A subjective unmet need for medical treatment of examination may indicate either (1) a solicited health care demand that was not met by an adequate supply (of either services or insurance coverage), or (2) unsolicited demand, resulting from either individual preferences leading to forgoing care or an actual/anticipated limitation of the financial capacity, mobility or information. Drawing valid conclusions requires a careful delineation of these eventualities. While unmet solicited demand and demand unsolicited in result of a health care deficiency can be credited to the health care system, forgoing care for other reasons ought to be identified as irrelevant and excluded from the analysis.

6.3. Existing studies

A great part of the rich evidence of health (care) inequalities focuses on health status and health outcomes, while studies that centre on access and utilisation remain relatively scarce (Bambra et al. 2010). This is particularly the case in the former Eastern bloc, where the scarcity of suitable data has kept the publication numbers low.

Kunst (2009) reviews the existing evidence on health care access and utilisation inequalities in Eastern Europe. In scope for his literature review are studies of socio-economic status implications for avoidable deaths, utilisation of health care, and cervical cancer screening. He concludes that inequalities in health and mortality are likely to partially result from inequalities in accessibility, utilisation and quality of services.

Balabanova et al. (2004) report socio-economic determinants of health care access and utilisation patterns in eight former Soviet Republics. Because of its objectives and methods, their paper can be viewed as complementary to this current study in focusing on another set of the former Eastern bloc countries. The authors find that medical care displays a great variation in the region, ranging from readily accessible in Belarus and Russia to poor and unaffordable in Armenia and Georgia; additionally, they report considerable inequalities within each country. A follow-up study by Balabanova et al. (2012) shows some improvements in accessibility and financial protection, as well as lower within-country inequalities. However, they also report that the problem of unaffordability persists, particularly among the most disadvantaged social groups, and paying for care, formally or informally, has become commonplace despite the

strengthening of public systems. In another study, Balabanova and McKee (2002) expose the intricacies of accessing health care in a system with prevalent informal payments, a setting that applies in many if not all countries of Eastern Europe. In 1997 Bulgaria, they find informal payments to scale accordingly to the ability to pay, and report poorer and female patients less likely to receive higher and more expensive forms of specialist care.

Some light is also shed onto the problem by the Euro Health Consumer Index (Björnberg 2012) that in its most recent edition included 10 EU member countries from Eastern Europe. Although the relevant "accessibility score" is limited to wait times in five treatment categories, the results are indicative of the countries' comparative performance. In the report, Slovakia and the Czech Republic receive the highest marks in the group, indicating relatively high accessibility, while Latvia and Poland are the low scorers.

6.4. Study design

6.4.1. Study aims

The study involves seven EU countries of Eastern Europe: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Slovakia, over five years 2005-09. By assuming a statistical approach, it addresses the questions of (a) the probability of experiencing an unmet health care need, i.e. the magnitude of access barriers; (b) primary reasons behind the reported unmet needs, i.e. the nature of access barriers; and (c) socio-economic determinants of access to care, i.e. the structure of inequality. Evidence in these areas may reveal systematic differences in performance between countries that made varied choices regarding the evolution of their systems after 1989. The longitudinal dimension gives an opportunity to inspect if ongoing changes in health care organisation and growing health expenditure go hand in hand with more equitable access and lower probability of reporting unsatisfied health care needs. It also provides an insight on whether internationally there is a convergence or divergence in this aspect of health system performance.

6.4.2. Data and variables

The primary concern of the analysis are individual-level, self-reported unmet needs for medical examination or treatment within 12 months prior to survey. In scope for this question are GP, specialist, and other medical consultations, however, only those qualifying as real ("core") "mainstream medicine". This information is supplemented by a follow-up question about the main reason behind the unmet need. On the explanatory side, factored in are relevant individual and household-level socio-economic variables. The variables and their levels are presented in Table 6.1: Descriptive statistics of the study sample. All variables follow the original survey definitions (Eurostat 2009). An excerpt of the survey documentation is enclosed in Appendix II.

Table 6.1: Descriptive statistics of the study sample

		2005		2006		2007		2008		2009	
Variable	**Category**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Health status	very bad	4,044	4.00	4,077	3.70	4,206	3.70	4,173	3.70	3,691	3.30
	bad	15,172	15.10	16,289	14.80	16,587	14.60	15,915	14.10	15,343	13.90
	fair^	31,659	31.50	34,949	31.80	35,105	30.90	33,273	29.40	32,992	29.90
	good	35,979	35.80	40,184	36.60	41,989	37.00	43,857	38.80	43,050	39.00
	very good	13,658	13.60	14,430	13.10	15,578	13.70	15,929	14.10	15,443	14.00
Sex	female^	54,608	53.80	60,853	53.90	63,254	53.80	65,382	53.80	65,263	54.00
	male	46,846	46.20	52,035	46.10	54,235	46.20	56,215	46.20	55,699	46.00
Age	below 30	24,531	24.20	26,469	23.40	26,582	22.60	26,895	22.10	26,271	21.70
	30-39	15,080	14.90	16,653	14.80	17,574	15.00	17,956	14.80	17,786	14.70
	40-49^	18,017	17.80	19,271	17.10	19,437	16.50	19,770	16.30	19,541	16.20
	50-59	18,117	17.90	20,104	17.80	21,273	18.10	21,897	18.00	21,842	18.10
	60-69	12,559	12.40	14,416	12.80	15,595	13.30	16,679	13.70	17,263	14.30
	70 and more	13,150	13.00	15,975	14.20	17,028	14.50	18,400	15.10	18,259	15.10
Education	primary	13,652	13.50	11,750	10.60	10,734	9.30	10,161	8.60	9,746	8.30
	secondary^	73,679	72.90	83,039	75.00	87,205	75.90	90,678	76.30	89,335	75.70
	tertiary	14,123	13.90	18,099	16.00	19,550	16.60	20,758	17.10	21,881	18.10
Household income	poorest	20,282	20.00	22,571	20.00	23,493	20.00	24,309	20.00	24,182	20.00
	2nd quintile	20,285	20.00	22,579	20.00	23,494	20.00	24,321	20.00	24,192	20.00
	middle^	20,293	20.00	22,573	20.00	23,495	20.00	24,319	20.00	24,191	20.00
	4th quintile	20,292	20.00	22,578	20.00	23,497	20.00	24,317	20.00	24,193	20.00
	richest	20,302	20.00	22,587	20.00	23,510	20.00	24,331	20.00	24,204	20.00
Basic economic activity	employed^	48,306	47.60	54,990	51.70	58,317	49.60	61,211	50.30	57,898	47.90
	unemployed	8,365	8.20	7,441	5.30	5,996	5.10	4,764	3.90	7,240	6.00
	retired	25,886	25.50	28,725	27.20	30,681	26.10	32,412	26.70	32,728	27.10
	otherwise inactive	18,897	18.60	21,728	19.90	22,495	19.10	23,210	19.10	23,093	19.10
Area of residence	urban	35,699	35.20	38,205	33.80	39,311	33.50	40,235	33.10	40,198	33.20
	intermediate^	14,705	14.50	16,723	14.80	17,878	15.20	19,522	16.10	18,536	15.30
	rural	51,050	50.30	57,960	51.30	60,300	51.30	61,553	50.60	62,228	51.40

Health status is self-assessed. Household income levels are quintiles of total disposable household income in 12 months prior to survey. Area of residence follows the DEGURBA classification (Eurostat 2009). Figures reported in the '%' column may not add up to 100% because of rounding.

Table 6.2: Sample size and share of country total population

	2005		*2006*		*2007*		*2008*		*2009*	
Country	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Czech Republic	8,628	0.08	14,856	0.14	19,384	0.19	22,754	0.22	19,765	0.19
Estonia	9,643	0.72	13,007	0.97	11,971	0.89	10,851	0.81	11,308	0.84
Hungary	14,791	0.15	16,516	0.16	18,490	0.18	18,710	0.19	20,973	0.21
Latvia	7,913	0.34	9,071	0.40	9,270	0.41	10,910	0.48	12,207	0.54
Lithuania	9,929	0.29	10,219	0.30	10,913	0.32	10,473	0.31	11,214	0.34
Poland	37,671	0.10	36,589	0.10	34,888	0.09	33,801	0.09	31,674	0.08
Slovakia	12,879	0.24	12,630	0.23	12,573	0.23	14,098	0.26	13,821	0.26

% of total country population.

Table 6.3: Study sample statistics: mean and standard deviation of continuous variables

	Household income (EUR)					*Respondent age*				
Country	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
Czech Republic	751 (503)	827 (530)	942 (588)	1047 (658)	1251 (821)	47.9 (18.2)	48.1 (18.3)	48.6 (18.4)	49.0 (18.4)	49.2 (18.4)
Estonia	598 (434)	703 (487)	865 (818)	1031 (682)	1134 (732)	45.4 (18.9)	45.5 (19.0)	45.4 (19.0)	45.9 (19.1)	46.3 (19.2)
Hungary	647 (494)	738 (647)	714 (453)	795 (485)	842 (480)	47.9 (18.3)	48.1 (18.4)	48.0 (18.3)	48.1 (18.4)	47.7 (18.2)
Latvia	424 (383)	498 (472)	640 (561)	916 (846)	1048 (1018)	48.1 (18.9)	48.6 (19.1)	49.2 (19.3)	49.0 (19.2)	49.4 (19.3)
Lithuania	426 (329)	505 (375)	646 (486)	796 (642)	955 (859)	46.9 (18.3)	48.9 (18.5)	49.6 (18.7)	50.5 (18.6)	50.8 (18.8)
Poland	525 (398)	640 (426)	717 (511)	842 (605)	1002 (727)	45.1 (17.9)	45.4 (18.1)	45.9 (18.2)	46.5 (18.4)	47.0 (18.3)
Slovakia	589 (393)	708 (804)	808 (451)	990 (560)	1216 (707)	43.6 (17.6)	44.4 (17.9)	44.5 (18.0)	44.5 (18.2)	44.3 (18.0)

Household income is a monthly average of the declared 12-month disposable household income. Income data are collected in national currencies and converted to euro values at average market exchange rates adjusted for purchasing power (Eurostat 2010a).

The analysis is based on survey data from the EU-SILC. All private households and all persons aged 16 and over within the households are eligible for the survey procedure. EU-SILC data provides nationally representative samples of both households and individuals. The selection of countries for this study ensures that basic concepts and definitions are fully comparable in terms of the reference population, private household definition and household membership (Wolff et al. 2010). The dataset has been previously relied on in a number of studies of socio-economic determinants of health and health care access in Western Europe (e.g. Allin & Masseria 2009, Hernández-Quevedo et al. 2010b).

Data quality is managed centrally by Eurostat, with the aims of minimising the bias of non-random missing data, ensuring consistency between results of different analyses, and providing a workable dataset to researchers (Eurostat 2009). A number of possible error categories are identified in the survey methodology: conceptual, data collection, processing, item non-response, coverage, unit non-response, and sampling. Data accuracy and comparability is achieved through detailed guidelines for local surveying units, and post-collection techniques. Handling of missing data takes into account the nature of non-response and may apply weighing, imputation or micro-simulation. Sampling errors are inspected using Jackknife Repeated Replication. The dataset is made available after confirming it has the attributes of relevance, accuracy, reliability, coherence and comparability. The above aspects of data quality are handled internally by Eurostat, and the published microdata do not contain information that would allow for reassessing non-response rates and re-estimating sampling errors (Verma & Betti 2010).

6.4.3. Statistical methods

The sample sizes allow for a multivariate regression of each country-year independently, enabling an estimation and comparison of country-specific socio-economic patterns of access. This approach is preferred to an analysis of cross-sectionally pooled data, which would impose the same coefficients across countries, effectively leading to a loss of information on regional variation.

The binary answer to the question of unmet medical needs is used as the response variable in a logit model. The conventional logit approach is employed (McFadden 1974, Wooldridge 2002), with the latent variable specification of:

$$y_i^* = x_i\beta + e_i = \beta_1 + health\beta_2 + sex\beta_3 + age\beta_4 + edu\beta_5 + inc\beta_6 + act\beta_7 + area\beta_8 + e_i \quad (6.1)$$

In the above equation, x_i is a vector of individual characteristics, β is a vector of unknown parameters, and e_i is an unobserved random component assumed to be independent and

identically distributed. In the model, individual characteristics are represented with a set of binary variables that correspond to variable categories presented in Table 6.1.

The latent function represents the capacity of a health care system to accommodate health care needs of a person whose socio-economic characteristics are x_i. Satisfying all the needs over the 12 month period produces the outcome $y_i=0$, while not providing access to health care at least once in the timeframe results in $y_i=1$. Hypothesised is H_0: $\beta_2 = \ldots = \beta_n = 0$, which reflects the situation of equitable access where no individual characteristic leads to a statistically significant difference in the probability of reporting unmet needs for examination or treatment.

Health care needs are more likely to occur in individuals of poor health, who can be expected to seek medical care more often. This increased occurrence of need in any given period of time makes them more likely to experience trouble in accessing care. For this reason, health status is assumed the role of a control variable.

The income variable, defined as monthly disposable household income, was tabbed into quintiles for each country-year combination. This implies thresholds for the five income bands are different in each case, but permits the estimation of effects of a relative position in the social income stratification, making the interpretations consistent in the light of the longitudinally and cross-sectionally varying income levels. Moreover, modelling income as bands allows for each strata having its own income effect, whereas a continuous variable approach fits an overarching sample coefficient estimate.

However, in order to inspect the eventuality that this approach affects the results in an arbitrary way, estimates of an alternative specification using continuous (linear and quadratic) age and income variables are obtained. Covariate patterns are found closely similar in terms of statistical significance and the magnitude of coefficients, suggesting that the treatment of age and income as categorical variables in the base model does not introduce arbitrariness into the results. The only notable difference is the primary education strata in Hungary becoming a statistically significant predictor of unmet medical needs. Full results of the alternative specification are available in Appendix I, Table A.2.

A multinomial logit of the same latent specification (Equation 6.1) is used in the exploration of specific barriers to accessing health care. The probability of reporting a specific problem is assumed to be a non-stochastic function of observable individual characteristics and an unobservable error term. Formally, modelled is $P(y_i=j|x_i)$, where the levels of y_i j=0,…,4 are derived from answers to the follow-up question about the main reason behind the unmet need. Accordingly, the values of j represent: (1) the problem of affordability (including a lack of insurance or inadequate coverage); (2) the issue of excessive waiting times (including a lack of referral); (3) the problem of mobility in getting to the place of service provision, indicating an

inadequacy of the geographical distribution of providers to the level of population mobility; (4) the barrier of informational or educational nature, such as not being able to identify or locate the right specialist, also a fear of treatment. These four groups of issues are commonly referred to as the *health care system deficiencies*. Finally, j=0 is the base category that comprises reasons not attributable to the health care system, such as individual preferences (e.g. for alternative medicine), priorities (e.g. work duties) and other personal choices (e.g. self-treatment) that lead to forgoing health care despite the need.

The probability predictions correspond to the base set of characteristics denoted with "^" in Table 6.1. All estimations are carried out in Stata 12.

6.4.4. Specification tests

In all of the logit models, the Likelihood Ratio Chi-Square test leads to a strong rejection of the hypothesis that all variables equal zero. The models are further scrutinised with a specification test ("linktest") and the Hosmer-Lemeshow (2005) goodness-of-fit test with 10 quantiles. The conditions are considered satisfactorily met at the 5% significance level, with both tests passed by 32 (out of 35) models. The models of Lithuania 2006 and 2007 fail the specification test, while Lithuania 2006 and Hungary 2009 fail the goodness-of-fit test. Caution is taken in the interpretation of these results; more specifically, any stemming conclusions are supported with statistical evidence of the closest cross-sections that withheld the statistical tests.

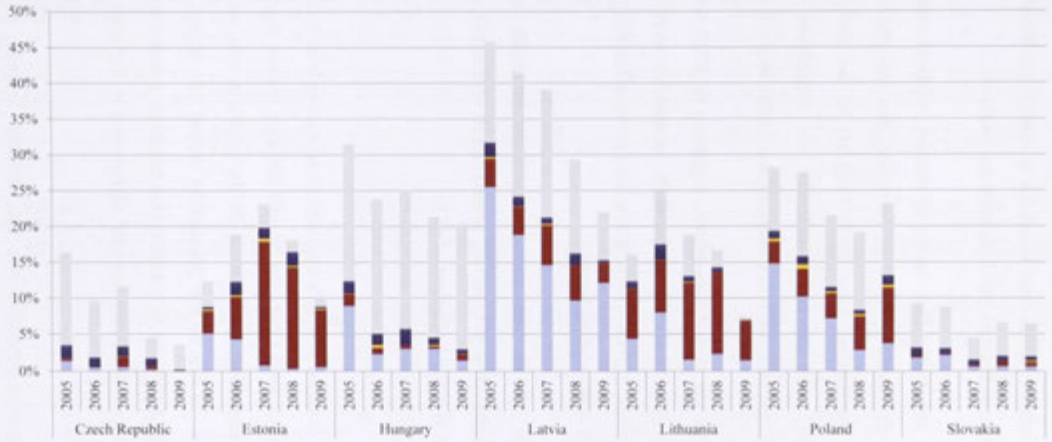
In the multinomial logit models, the Hausman test is used to verify whether the condition of independence of irrelevant alternatives is satisfied. Following a discussion of Freese and Long (2001), the tests are performed using the mlogtest command, version 1.7.6 jsl 2009-10-18. In every case the omitted alternative is found independent of other alternatives with 95% confidence, thus leading to the conclusion that the assumption is met.

6.5. Findings

6.5.1. Probability of experiencing an unmet health care need

Figure 6.1 provides a graphical and tabular presentation of predicted probabilities of experiencing an unmet need in each country for each year, at the base set of characteristics and after controlling for the effect of other covariates. These post-logit predictions show that considerable differences exist within the group of CEE7 countries. Populations of the Czech Republic and Slovakia enjoy health care that is relatively accessible, with the existing barriers low, stable and primarily extrinsic to the health care systems. As of 2009, in the Czech Republic the probability of not being able to access health care in need was 3.57%, however, only 0.28% in consequence of a health care system deficiency, and mainly because of waiting times and

Figure 6.1: Predicted probability of reporting an unmet need for medical treatment or examination within a 12-month period, controlling for covariates, and primary reasons



	Czech Republic					Estonia					Hungary					Latvia					Lithuania					Poland					Slovakia				
Reason	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Affordability	1.33	0.55	0.62	0.29	0.00	5.12	4.33	0.82	0.37	0.60	9.00	2.29	3.04	3.03	1.40	25.56	18.90	14.69	9.74	12.21	4.41	8.09	1.48	2.30	1.42	14.87	10.27	7.21	2.83	3.74	1.76	2.14	0.65	0.69	0.65
Wait time	0.29	0.07	1.29	0.36	0.16	3.15	5.92	17.12	14.03	7.85	1.65	0.87	0.37	0.31	0.83	3.94	1.90	3.32	4.91	2.75	6.94	7.25	10.76	11.43	5.60	3.09	3.87	3.53	4.68	7.79	0.21	0.16	0.17	0.58	0.51
Mobility	0.03	0.00	0.05	0.03	0.02	0.21	0.23	0.40	0.18	0.14	0.03	0.39	0.04	0.21	0.05	0.23	0.03	0.23	0.03	0.01	0.02	0.05	0.08	0.00	0.00	0.38	0.59	0.22	0.30	0.34	0.03	0.01	0.00	0.02	0.18
Information	1.88	1.21	1.40	1.06	0.10	0.35	1.90	1.57	1.94	0.29	1.76	1.58	2.31	1.01	0.71	2.03	1.42	0.92	1.63	0.37	1.06	2.23	0.81	0.63	0.00	1.08	1.17	0.64	0.60	1.34	1.39	0.78	0.68	0.73	0.38
Other	12.84	7.85	8.19	2.73	3.29	3.57	6.47	3.22	1.60	1.42	19.10	18.67	19.28	16.78	17.41	16.06	17.13	17.83	13.00	6.70	3.63	7.32	5.67	2.30	0.42	8.80	11.60	9.92	10.72	10.02	6.06	5.73	3.05	4.52	4.46
Total	16.37	9.67	11.55	4.46	3.57	12.39	18.84	23.14	18.10	10.30	31.54	23.80	25.05	21.34	20.39	45.82	41.38	39.16	29.32	22.06	16.05	24.91	18.80	16.66	7.44	28.22	27.50	21.52	19.12	23.24	9.25	8.82	4.55	6.55	6.38
Total HCS	3.53	1.82	3.36	1.73	0.28	8.83	12.37	19.91	16.51	8.89	12.44	5.12	5.77	4.56	2.98	31.76	24.24	21.33	16.32	15.36	12.42	17.58	13.13	14.36	7.02	19.42	15.90	11.60	8.40	13.22	3.19	3.09	1.50	2.03	1.92

Post-logit probability predictions at base characteristics (denoted '^' in Table 1). The probabilities provided concern population at large, not those seeking care. In the figure, the height of each column indicates the estimated probability of an individual reporting at least one unmet need for examination or treatment in 12 months prior to survey ('Total' in the table). The column height excluding the grey 'other' category illustrates the probability of reporting an unmet need because of the health care system deficiencies ('Total HCS' in the table). The table represents values corresponding to those presented in the figure, expressed in percentage terms.

information issues. The corresponding numbers in Slovakia were 6.38% and 1.92%, with affordability and waiting times being the most prevalent barriers.

In Estonia and Lithuania, unmet needs' frequency peaked in 2006-07, however, by 2009 it scaled down to below the level of 2005. Contrary to Czech Republic and Slovakia, in the two above countries waiting times were the primary factor stopping people from accessing care. In 2009, the probability of reporting an unmet health care need for a reason attributable to the health care system was 8.9 and 7 per cent, in Estonia and Lithuania respectively.

Hungary shows a distinct problem structure. The rates of unmet medical needs were considerably higher than in the previous countries (20.4%), however, this was mainly due to reasons not amenable to the health care system. Looking exclusively at the situations that emerged from health care deficiencies, over the period 2005-09, the magnitude of access barriers was reduced from 12.4% to 3%, with affordability standing out as the major issue.

Latvia and Poland should be considered the regional laggards, reporting in 2009 comparable extents of access problems, both with respect to all reasons (with the probability over 22%) and those attributable to the health care system (over 13%). While in Latvia affordability was a common issue, in Poland it was coupled with waiting times.

The longitudinal dimension of results shows that access conditions generally improved. Comparing years 2005 and 2009, the probability of reporting unmet health care needs decreased in all the countries by 17-78%, with the average reduction of 41%.

6.5.2. Access barriers

Over the analysed period, affordability became less of a restraint in accessing health care; in all the countries the probability of reporting unmet needs for an affordability reason decreased by 52 to 88 per cent, except for Czech Republic, where in 2009 the problem was nearly non-existent. In Latvia, on the other hand, 12.2% of the population would not access care for affordability reasons. While Latvia is an outlier in this aspect (the remaining countries average 1.3%), the statistical evidence also shows substantial regional differences in the prevalence of the problem.

With respect to waiting times, two groups emerge from the analysis. Estonia, Poland and Slovakia experienced a nearly 50% expansion in the frequency of this issue. The remaining four countries reduced the occurrence by 19-50%. These outcomes have to be put in the context of the absolute materiality of the problem, however. The Czech Republic, Hungary and Slovakia were countries where less than 1% of the population would report waiting times as restricting them from accessing care. At the other end of the spectrum were Estonia and Poland, with nearly 8% of individuals indicating this problem.

Table 6.4: Predicted probability of reporting unmet needs for medical treatment or examination (odds ratios) for covariates included in the base model

Variable	Category	*Czech Republic*					*Estonia*					*Hungary*					*Latvia*					*Lithuania*					*Poland*					*Slovakia*				
		2005	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
Health status	very bad	1.69	2.33	1.89	2.96		1.69	2.65	1.58	3.03		1.5	1.87	2.39	1.99	1.84	2.73	1.69	2.04	3.13	1.76	3.4	2.65	3.95	2.91	2.85	1.81	1.68	2.03	1.97	2.05	3.79	3.9	4.22	3.06	4.47
	bad	1.65	1.6	1.57	1.37	1.45	1.86	1.68	1.53	1.92	1.85	1.4	1.62	1.83	1.4	1.51	2.18	1.62	1.49	1.62	1.62	1.93	1.99	2.28	1.83	1.8	1.41	1.37	1.48	1.46	1.59	2.63	2.22	2.21	2.11	2.32
	fair^	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	good	0.38	0.57	0.43	0.44	0.57	0.39	0.4	0.39	0.34	0.43	0.49	0.53	0.41	0.43	0.35	0.34	0.38	0.43	0.29	0.25	0.34	0.33	0.35	0.42	0.46	0.43	0.44	0.39	0.43	0.36	0.54	0.6	0.62	0.44	0.49
	very good	0.21	0.24	0.22	0.25	0.2	0.18	0.17	0.16	0.28	0.5	0.37	0.3	0.21	0.18	0.19	0.15	0.19	0.3	0.15	0.19	0.25	0.17	0.23			0.19	0.23	0.22	0.23	0.18	0.26	0.26	0.43	0.29	0.25
Sex	female^	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	male				1.24			0.86	0.86	0.79			1.13	1.11	1.12	1.19	0.78					0.81			0.8	0.72	0.83	0.85	0.86		0.83		0.86				
Age	below 30							0.42	0.44	0.53	0.52	0.71	0.64	0.7	0.63	0.56	0.74	0.72	0.51		0.75				0.22	0.52	0.76	0.83	0.74	0.81	0.84			0.71	0.71	
	30-39				1.38														0.8		1.22				0.68											
	40-49^	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	50-59	0.63	0.75	0.71								0.82	0.78	0.76	0.84					0.82							0.79	0.9	0.85					0.64	
	60-69	0.59	0.51	0.65	0.52	0.44	0.69	0.55	0.73		0.62	0.7	0.69	0.61	0.75	0.75	0.61			0.8					0.68		0.67	0.81	0.83		0.84		0.62	0.51	
	70 and more		0.49	0.58	0.54	0.41	0.5	0.35	0.6	0.57	0.46	0.41	0.48	0.46	0.51	0.47	0.48	0.67	0.62	0.5	0.66		0.66	0.67	0.45		0.46	0.59	0.55	0.64	0.58	0.59	0.5	0.6		
Education	primary																1.17	1.35	1.59	1.47										1.19					
	secondary^	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	tertiary	1.43																0.82					0.79				1.15	1.19	1.19		1.21					0.55
Household income	poorest				1.74	2.19	1.59	1.49	1.28	1.25	1.36	1.32	1.35	1.16	1.46	1.43	1.26	1.69	1.6	1.76	1.79	1.25	1.39			1.48	1.45	1.42	1.32	1.43	1.41	1.47	1.6			
	2nd quintile					1.54							1.35		1.25	1.25		1.27			1.31					1.51	1.25	1.12		1.12						
	middle^	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4th quintile				1.35	1.41								0.8			0.84		0.82				0.78	0.79				0.84							1.36	
	richest											0.77					0.78	0.68	0.57	0.77	0.71		0.79												1.47	
Basic economic activity	employed^	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	unemployed			0.64			3.34	2.51	2.42	2.11	2.18						1.35	1.54	1.52	1.44	1.47	1.31										1.36	1.37	2.53		1.93
	retired	0.61		0.59								0.54	0.48	0.59	0.52	0.51		0.68		0.74	0.75						0.71	0.6	0.64	0.7	0.71	0.53	0.7			0.59
	otherwise inactive	0.52	0.63	0.72	0.68					0.77		0.69	0.56				0.62	0.65		0.72			0.79	0.78			0.63	0.65	0.66	0.71	0.76		0.63		0.48	
Area of residence	urban					1.5						0.83		0.66	0.87	0.5											1.25	1.28	1.31		1.22	1.39	1.52	1.44	1.35	
	intermediate^	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	rural			0.71				0.82	0.5	0.74	0.65	0.74	0.83	0.71			0.59	0.71	0.62	0.8		0.61	0.49	0.48	0.46	0.42	0.85				0.9					

Reported are odds ratios relative to the base ('^') category statistically significant at 5%. No value indicates the coefficient was found statistically insignificant. Presented point estimates are subject to uncertainty. Standard errors are omitted for clarity of presentation. Full results including standard errors are supplied in Appendix I, Table A.3.

Mobility was a less frequently reported concern. In Slovakia, Estonia and particularly Poland, the prevalence was relatively high with more than 0.1% individuals in 2009 experiencing difficulties in physically accessing a point of provision. In the other countries the respective figures were below 0.05%.

It appears that, between 2005 and 2009, significant improvements took place in the area of patient information. In countries other than Poland, the probability of reporting informational access barriers was substantially reduced to below 1%.

6.5.3. Socio-economic determinants of access

In the analysed countries, education did not seem to constitute a major determinant of access to health care, with two exceptions. In Latvia, individuals with primary education were more likely to report unmet health care needs. In Poland, the same was true of the higher education stratum, which stands against the theoretical expectation (Aday & Andersen 1974).

In four out of seven countries, individuals of the lowest household income quintile were consistently more likely to experience unmet medical needs. In the remaining three countries the evidence can also be found in selected cross-sections. Moreover, in 10 out of 35 country-year combinations, evidence supports the hypothesis that the better-off households enjoy facilitated access to health care. Latvia was the country with the most pronounced income-related inequalities of access, with strong evidence for both the disadvantageous situation of the lowest income quintile as well as the advantageous position of the highest. No evidence on income inequalities of access is found in the Czech Republic for years 2005-07, Slovakia 2007-08, and Lithuania 2008. However, in the most recent years in the Czech Republic and Slovakia individuals coming from more affluent households were more likely to report access barriers.

As for basic activity status, in Estonia, Latvia and Slovakia, the unemployed faced consistently higher than working individuals odds of failing to access health care. Retirees and otherwise inactive individuals, on the other hand, were generally less likely to report access problems, except in Estonia and Lithuania, where these groups did not statistically differ from the employed population.

With respect to gender, statistically significant differences occur in half of the country-year cases. Generally, men were less likely to report access problems, except for Hungary, where the opposite was true. In the Czech Republic, Latvia and Slovakia, no evidence of systematic differences is found in four out of five cross-sections, making these countries the most equitable. Particularly in Estonia, Lithuania and Poland, the situation of women may need to be given a policy consideration.

There are marked patterns of age dependency of health care access. Generally speaking, population aged 30 and less tended to enjoy a facilitated access. The problem peaked in the productive age cohorts, particularly in the group of 30-49 year olds, and subsequently lessened as the retirement age was approached.

In Estonia, Hungary, Latvia and Lithuania rural populations were less than the comparator group likely to report access difficulties. In line with this is evidence from Poland and Slovakia, where urban populations were more exposed to the problem. Little evidence on the influence of the area of residence is found in the Czech Republic.

Finally, the estimated coefficients and their statistical significance provide strong evidence for the theoretical expectation that poorer than average health makes it more likely to experience health care access issues. Below-average health leaves individuals increasingly exposed to the problem, and the odds are the highest in the lowest health status category. The opposite is also true: the better the health status, the lower the odds of experiencing unmet health care needs. This pattern is largely consistent across the countries and cross-sections.

Notable is also an overall positive trend regarding the health status. The share of the region's population reporting bad or very bad health diminished from 19.1% in 2005 to 17.2% in 2009. At the same time, the proportion of individuals assessing their condition as good and very good increased from 49.4% to 53%.

6.6. Discussion of results

6.6.1. Implications for health care systems

The challenge of health care access is one of a dual nature. On one hand, in Eastern European systems that face financial and institutional constraints, the magnitude of access barriers is generally high. On the other, there are considerable within-country inequalities related to socio-economic status.

The results presented in Figure 6.1, which correspond to the WHO (Roberts 1998) definition of access as "a measure of the proportion of population that reaches appropriate health services", show that significant disparities exist within the CEE7 group. The consistency of individual country trends substantiates these differences as systematic.

While the dataset does not provide the opportunity to inquire about the nature of specific access limitations, it is clear that the best performers enjoy systemic advantages. The Czech Republic and Slovakia both employ the competing insurer model and are the biggest per capita spenders on health – in 2009, ca. 1,770 constant 2005 international PPP dollars, given CEE7 average of 1,300 (WB Databank). The levels of spending are crucial, given the fact that health care

underfunding is one of the major headaches in the region. In spite of these common characteristics, the two countries have strongly dissimilar levels of public spending. While the Czech system sets the benchmark for its peers in providing equitable and accessible care by featuring the highest in CEE7 levels of public spending (84% of total expenditure on health in 2009), Slovakia achieves comparable performance at the second-lowest 66%. Health care in Slovakia remains accessible despite the fact that high levels of private expenditures are not mitigated by voluntary health insurance, and largely take the form of out-of-pocket payments.

Still, even in the group of single payer systems, patients experience various levels of accessibility. Hungary provides an interesting example of a country that has had a rather bumpy transition in terms of health reform consistency and continuity, nevertheless displays above-average performance. Hungary and Poland both have centralised payer agencies and matching levels of health expenditure. Moreover, both countries are notorious for the prevalence of corruption in health care (Ensor 2004). Yet in Poland, an individual is more than four times as likely to forgo medical care for reasons amenable to the health care system.

With respect to the governance arrangements introduced in Chapters 3 and 4, there does not seem to be a clear pattern linking them to the equity outcomes. The seven countries represent Stages 3 and 4 of the hospital governance transition model (Table 3.2). In those countries, corporatisation of hospitals has either been achieved or is currently under way. There are three broad reasons why governance of hospitals might not be reflected in the accessibility of health care as measured in this study. Firstly, it may be of no direct consequence to the outcome measure. Secondly, its effect may be eclipsed by other factors, such as the system for health care financing. Thirdly, this study is concerned with all modes of health care, which implies that, other than hospital care, it also encompasses primary and specialist care. Consequently, the equitable distribution of hospital care is only partly responsible for the overall outcome.

The issues of affordability and waiting times are the dominant access barriers and in fact two sides of the same coin – the inability to pay. Excessively long waiting lists in countries like Latvia and Poland often result from volumes of services contracted at levels inadequate to population needs. This is a consequence of health insurance funds' budget limitations, and should be linked to an insufficient funding in the public sphere rather than inadequate provider capacity (Kuszewski et al. 2005, Tragakes et al. 2008). Affordability, on the other hand, is an issue of individual inability to pay for services in the market or in the public system, the latter both in formal and informal terms, and may also stem from gaps in health insurance coverage. Furthermore, the two problems are connected in that prohibitively long waiting times in the public system often force out-of-pocket market purchase of services. Despite being guaranteed under a statutory insurance scheme, certain services are not effectively available, possibly leading to inequalities related to the ability to pay.

Goddard and Smith (2001) emphasise the awareness of availability and efficacy of treatment as a precondition for equitable access. This aspect poses a challenge to public health, as adequately presented information is argued to be a crucial resource in supporting individuals' conscious choices (Hibbard & Peters 2003). In the Czech Republic and Slovakia, tackling other access limitations exposed information deficiencies, which in 2009 stood behind a third of all medical needs unmet for reasons attributable to the health care system. Over the five-year period, however, countries other than Hungary and Poland experienced a decrease of informational issues' relevance, relative to the remaining health care system deficiencies. This may partly reflect a growing reliance on the internet as a source of medical information and a space for opinion-sharing (Kummervold et al. 2008).

As for socio-economic inequalities, reaching appropriate health care services remains a challenge for the poorest households in the region. However, there are countries that seem to be doing better in this respect. In Slovakia, since 2007, the odds for the 1st and 2nd quintiles were not statistically different from the base middle-income category. In the Czech system, the inequalities only appeared in 2008-09, and have to be considered in the context of an overall reduction in the occurrence of unmet medical needs. It also has to be noted that the appearance of income-related inequalities coincided with the introduction of co-payments in the Czech Republic; the token co-payments for doctor visits, hospital days, selected ambulatory services and prescription pharmaceuticals were aimed at curbing consumer moral hazard (Bryndová et al. 2009).

In all of the analysed countries, it is the working cohorts (particularly those aged 30-49) that are the most exposed to access difficulties. By the same token, individuals in their teens and 20s as well as older individuals tend to perceive health care as more accessible. These results are likely to be a consequence of lower time costs for the old and the young, given that health status is controlled for.

Finally, the financial crisis of 2008-09, which affected the Baltic countries with sharp declines of economic output and soaring levels of unemployment (Masso & Krillo 2011), does not seem to be reflected in the accessibility of health care. Quite the opposite, from 2007 onwards, in the three countries there was a monotonic decrease in the frequency of unmet medical needs.

6.6.2. Policy considerations

The above considerations arrive at the difficult time of public sector austerity, when the paradigm of continuous growth in expenditures is increasingly substituted by the principles of integrated care, cost-effectiveness and frugality. Given current government deficits and an outlook of further fiscal pressures, resulting from population ageing among other things, an

urgent question is how to make health care systems perform better without spending more. As this paper shows, in the area of health care accessibility, there are peer lessons to be learned.

In Eastern Europe, the idea of competition in the health sector has been stigmatised as exclusive and inequitable. While the health care financing model is by no means the sole factor determining the accessibility of health care services, this study provides an argument against the single payer model being allegedly more accessible and equitable, a justification often repeated in the political rhetoric of health reform. As statistical evidence shows, the regional benchmark is set by the countries that employ the competitive insurer model. A well-designed competing insurer system tends to benefit from market forces as well as from a more transparent structure and higher standards of information and governance (Bevan & van de Ven 2010). In the light of these observations, and given relatively poor current performance, it can be argued that the sickness fund reform introduced in Poland in 1999 and revoked in 2003 was a wasted opportunity.

The issue of waiting times points at contracting low volumes of services relative to needs, a problem that could be alleviated by increased levels of contributions. However, bringing more funds is unlikely to prove an effective strategy in the systems that already perform poorly. In countries like Latvia and Poland, where gaps in coverage are substantial, this leads to the question of the role for private financing, in particular the capacity of private health insurance to promote efficiency and equity. Moreover, prepayment options must be considered as means to improve financial protection, given that in the region out-of-pocket payments may constitute over a quarter of total expenditures on health. According to OECD System of Health Accounts, 2009 shares of household out-of-pocket expenses in total health expenditure were: in the Czech Republic 14.9%, Estonia 21.2%, Poland 24.4%, Hungary 25.9%, Slovakia 26.9%. Special attention must be paid to the pharmaceuticals reimbursement policy, because expenses on medical goods make between 54% (Hungary) and 73% (Estonia) of household out-of-pocket health expenditure (OECD.Stat). The financial protection of prepayment schemes is especially important in the case of poorest households that face the highest risk of catastrophic expenses and are the most exposed to access difficulties. Given the diversity of possible private health insurance implementations, and considering the fact that the existence of coverage gaps is not a sufficient condition for the emergence of a voluntary market (Thomson & Mossialos 2009), this funding option has to be carefully studied by policy-makers.

6.6.3. Limitations and caveats

Authors of the original survey recognise implications of study sample exclusions that are a consequence of the household-based design (Wolff et al. 2010). Explicitly excluded from the target population are individuals qualifying as institutional population (OECD 2007). Some institutionalised groups, such as the homeless, the elderly, prisoners and refugees, are likely to

experience higher than the average population difficulties in accessing health care. Moreover, access barriers they face may vary between countries, depending on the extent of health insurance coverage and other aspects of social security. Thus, excluding those groups may limit the system-wide representativeness of findings. Furthermore, transfers between the household and institutionalised domains could affect the longitudinal comparability of study groups. While the magnitude of exclusions is not addressed in quantitative terms in the EU-SILC methodology, other studies suggest that shifts between the household and institutional populations are minor and unlikely to significantly bias the outcomes of this analysis. For example, the 1995 census data indicates that 1.68% of EU15 population was institutionalised, and the figure was projected to increase to 1.85% by 2010 and then to decline to 1.71% in 2025 (Eurostat 2003).

Kunst (2009) argues that the reliance on unlinked cross-sectional data is a major limitation of existing comparative studies of health (care) inequalities in Central and Eastern Europe. In the light of his observation, the longitudinal and cross-sectional consistency and comparability of data is an upside of the present study. However, this comes at the expense of a deepened analysis. In particular, the survey provides no distinction of the generalist, specialist, inpatient, and other health needs as well as forgone services. Moreover, only the primary reason behind forgoing care is reported, which may conceal the underlying complexity of the problem. For example, a reported inability to pay for services in the private market may be a consequence of excessive waiting times in the public system. Similarly, low materiality of informational access barriers in Estonia and Lithuania may be a result of these barriers being obscured by the more immediate problem of waiting times, rather than a signal of actual high system performance in this aspect. Further still, the survey does not inquire how many times each person experienced the problem in the 12-month reference period. Each positive answer indicates that a person's medical needs were unmet at least once, effectively censoring information on the event reoccurrence.

As defined in the questionnaire, the issue of affordability includes cases of inadequate insurance coverage. However, this situation cannot be clearly distinguished by the use of any available variables. In particular, the problem of inadequate coverage does not correspond to the unemployed or economically inactive status, because such persons may or may not benefit from welfare protection or family arrangements such as inclusion of children under statutory insurance. The lack of clear identification disallows reaching situation-specific conclusions. This extends in particular to vulnerable groups such as ethnic minorities, e.g. the Roma people, who are also likely to be underrepresented in the study sample (Fésüs et al. 2012).

The need, as defined in this study, is a self-assessed, "core" and "real" requirement of a consultation with a conventional medicine specialist (Eurostat 2009). In contrast, Oliver and

Mossialos (2004) identify two key components of a health care need: the individual's pre-treatment state of health and his or her capacity to benefit from health care. It is apparent that the EU-SILC definition of need focuses on the subjective health status. Moreover, it disregards the "capacity to benefit" component, to the extent the respondent takes no account of it. This fact renders the interpretation of equitable health care according to the principle of "equal access for equal need" not applicable.

Admittedly, countries may and do differ in patterns of risk factors such as lifestyles and environmental conditions, which might result in varying levels of burden on health systems. Nevertheless, the findings illustrate the adequacy of each country's health system to its idiosyncratic conditions. In a sense, the underlying differences are internalised in the level of need reported the populations, and the survey responses are individual-level assessments of the health care system's capacity to answer those needs.

More problematically, nations may differ in characteristics such as perceptions of health needs, expectations of health care and health care seeking behaviours. These factors, relevant to the research problem and possible sources of bias, were not included in the analysis because of the survey limitations. Another concern is the potential bias in self-reported measures of health and in other variables analysed in the context of this study. A comprehensive discussion of these methodological issues and an assessment of the EU-SILC validity in this regard is provided by Hernández-Quevedo et al. (2010a).

6.7. Conclusions

Despite the nearly universal statutory insurance coverage in Eastern Europe, ensuring actual, timely and equitable access remains a challenge. Barriers are pervasive and form a firm element in the health care landscapes of poorly performing systems. This study illustrates differences in health care accessibility within a group of seven Eastern European countries, taking into consideration both the magnitude of the problem and within-country inequalities. The identified discrepancies are significant and systemic, although in the region at large the situation improved considerably between 2005 and 2009.

Countries that employ the competitive insurance model and are the biggest spenders on health consistently outperform their peers. Substantial differences are also found between the single payer systems. In the laggard states, inefficiencies and underfunding of public systems lead to rationing through waiting times and informal payments, exposing individuals to financial and health risks. The evidence provided in this paper is indicative of gaps in coverage and groups at risk that, depending on country, may include the poorest households, the unemployed, working age cohorts and women. These findings call for a consideration of policy remedies that would

either improve the allocation within the public system or provide an efficient alternative outside of it. One such option might be private health insurance.

These are trouble days for welfare states. Even so, the fiscal uncertainty looming over Europe may well prove conducive to bold reforms. There is certainly a need to make health care shortcomings explicit and address them with the best available policy tools. Identifying the areas of underperformance and setting realistic, regional benchmarks is the first step towards achieving the goals of accessibility and equity. Further studies should focus on disclosing the nature of unmet medical needs on one hand, and on the identification of adequate policy responses on the other.

PART IV:
GENERAL CONCLUSIONS

Chapter 7:
Key findings and concluding remarks

After the Fall of Communism, the scope and depth of reform has varied substantially between the former Semashko systems, resulting in differing structures and outcomes. In regarding this broad and diversified region, this current dissertation made three attempts to improve our understanding of post-communist health transition processes. The first attempt was aimed to describe and synthesise what we already know about the region. The second identified patterns in changing hospital governance, explained its economic meaning and produced a statistical assessment of its impacts. The third analysed accessibility of health care in seven peer countries. Together, the literature review and two original studies shed new light on the developments and opportunities faced by the post-Semashko countries.

7.1. The background chapter

There are a number of lessons from the literature review in the background chapter, which are essential to understanding the transformation of Eastern European health systems. Possibly the most important one, the magnitude of institutional, social and economic change, is exogenous to the HCS itself. Its implications range from the absolute available levels and distribution of resources, mechanisms for their coordination and allocation, needs and expectations. The dramatic change in the context for HCS operation was illustrated by Williamson's four levels of economic institutions, starting from social norms and values, new political and economic systems, e.g. moving towards representative democracy and shifting from central planning and bureaucratic coordination to market allocation and contract-based relations, as well as by rapid GDP growth, somewhat heightened economic inequalities, ageing population, higher education attainment, and increasing burden of civilisational diseases.

The second observation is regarding similarities and contrasts within the region, both in terms of emerging economies and health care systems. As for the similarities, it is largely justified to

consider the HCSs in question as homogenous at the beginning of the transition period, despite minor discrepancies existing prior to 1989, such as concerning the legality of private practice. Another common theme relates to the benefits and downsides of the socialist inheritance: on one hand, universal access to health care and dense networks of health care facilities, on the other, the burden of maintaining and restructuring the post-Semashko inheritance. Yet, the period of transition produced an increasing diversity of economic and social systems, and this heterogeneity is also reflected in the organisation and performance of health care systems. The literature overview suggests that the post-communist region can be clustered into the groups of Central and Eastern Europe, Former Soviet Republics, and Caucasus/Central Asia. This division establishes peer groups relevant for the discussion of available resources, reform capacity and priorities as well as for the purposes of comparing strategies and outcomes of health care transition.

Furthermore, reform efforts in CEE/CIS have suffered from a number of "quality" issues, notably a lack of clearly defined goals, incomplete or unrealistic strategies, disregarding the need for evidence in aiming at optimal results, flawed design, inadequate timing and pacing. Attempts to modernise the health sector were also repeatedly thwarted by obstructive groups of interest. This results not only from the lack of accord as for reform measures and priorities, but also from defensive attitudes of entrenched powerful stakeholders striving to maintain the status quo. Another major problem area is corruption that transcends all levels of the HCS and the economy at large, affecting political and legislative processes, strategic choices, as well as the use of resources at the provider level and ordinary patient-doctor situations. While the presence and forms of corruption are universal across the region, its magnitude varies between countries.

Diverse transition trajectories led to today's health systems representing various scopes and extents of reform. At one end of the spectrum are countries whose HCSs remain virtually unchanged from its Semashko form, at the other, there are highly evolved systems that feature competition of insurers and providers in an extensively decentralised context. Most countries sits in between of the two extremes, having introduced new financing principles, mixed public and private (primary, ambulatory) ownership, a degree of pluralisation, autonomisation, decentralisation and inclusion of stakeholders. More fundamental changes encompassed increasing individual choice and responsibility; in the instances of social health insurance, also terminating the universal entitlement and binding it to the payment of obligatory contributions (with exceptions based on social solidarity). The introduction of social health insurance in half of CEE/CIS countries was possibly the most impactful reform that altered the ways of generating health revenue, pooling of public funds, and led to an expansion of activity and patient-based provider payments. Chapter 2 reflects the fact that literature of health economics and policy has been primarily focused on these matters.

The systems emerging from transition continue to face many old problems (constrained resources, high capital costs, obsolete facilities and clinical practices, issues in quality, equity and responsiveness, commonplace informal payments) as well as new pressures relating to the worsening fiscal situation, population ageing and the growing prevalence of diseases of civilisation. Problem intensity varies across the region, however, and some HCSs of Causasus/Central Asia struggle to ensure basic health protection for their populations.

The hospital sector is especially burdened with the "socialist inheritance". Due to their complex nature, sunk costs, and the special role in the Semashko model, downsizing and modernising hospital networks has proven to be a herculean task for all CEE/CIS reformers. As opposed to primary and ambulatory care, privatisation turned out to be infeasible in the case of the overblown and rapidly depreciating hospital sector. The change within the public sector has been constrained by particularly well-entrenched interest groups. Most countries departed from financing of hospitals through historical budgets and moved towards providing economic incentives by the means of contracting and the design of payment mechanisms. This process has been relatively well documented in the literature of health care transition.

7.2. Hospital governance

Parts II of the present thesis attempted to fill in gaps identified in the literature of the hospital sector transformation. Namely, compared to the attention given to financing of hospitals, few studies contemplated the meaning and implications of decentralisation, autonomy, ownership, and legal forms. These elements of hospital governance underwent a gradual evolution without crossing the public-private frontier, which may be one explanation why the process escaped the attention of researchers. The difficulty in describing and interpreting particular governance contexts and a lack of formal economic models offer other possible reasons. Nonetheless, matters of ownership and governance have recently been the subject of some internationally visible papers. The study in Part II corresponds with those publications focused on the OECD countries by accounting for developments in Eastern Europe.

A number of research questions were stated in Chapter 1 to be answered in Part II. The questions concerned a region-wide pattern in transforming the post-communist hospital sector, stages of this pattern having distinct economic characteristics, and the possibility of measuring the impacts of the transformation phases on hospital sector performance. These questions are addressed in Chapters 3 through 5, respectively.

Chapter 3 overviews individual country experiences in order to substantiate a hypothesised pattern of hospital governance transition (Part II, research question 1). The proposed model recognises five configurations of hospital governance: (1) the centralised, integrated Semashko system, shared by all the countries selected for the study, (2) delegated or de-concentrated

hospital network management, (3) hospital ownership devolved to territorial governments, (4) corporatisation, and (5) privatisation of hospitals. The strength of this model is in its capacity to reflect changes taking place within the public sector, in the lack of a clear-cut privatisation context. In particular, the model illustrates the countries' position, relative to the region at large, in terms of an increasing participation of territorial governments and a growing influence of hospital managers over decisions underlying provision of hospital care.

The reviews of each country's individual progress add up to a regional experience of transition, which asks for a summary of lessons learned in the process. Transforming hospital governance, unfolding in parallel to financing reforms, emerges as a pivotal strategy for reorganisation of hospital networks and imposing financial discipline. The process is typically highly politicised and critically dependent on the managerial capacity of empowered managers. There are considerable disparities between countries in terms of quality, form, extent and timing of de-concentration and devolution processes. In contrast, corporatisation appears to be a well-defined transformational step that conveys a largely standardised set of rights and responsibilities for health establishments. An implication of the above shifts in power is the changing role of the Ministry of Health, which sheds its original role of a direct administrator to become the sector's steward and regulator.

Finally, recognising the processes in the area of hospital governance offers an enhanced understanding of post-Semashko systems. An extended typology of HCSs views financing mechanisms in conjunction with governance arrangements, which jointly give a more accurate indication of the transition status.

Chapter 4 establishes theoretical grounds for the understanding of hospital governance. Each stage of hospital governance transformation in CEE/CIS corresponds to an institutional characterisation, in which decision powers, financial risks and residual claims are distinctly distributed between the central government, territorial authorities and hospital managers. Moreover, it reflects efficiency factors associated with decentralisation, such as local information advantage and the possibility to innovate. Based on the above, the stages of transition can be argued to have distinct economic characteristics (Part II, research question 2). This discussion is concluded with a compilation of the potential for economic efficiency of each model stage; the intensifying incentive for economising stems from the consideration of information advantages, the space for innovation, financial risk and residual claims.

Moreover, in the light of the economic theory, governance should be seen as complementary to financing. Governance may carry its own economic incentives internal to the organisation; in addition, it affects the reception and response to external incentives. Thus, a governance arraignment, coupled with the dominant payment mechanism, constitutes a more complete picture of economic incentives and the managerial capacity in the sector. This extended context

explains why financial incentives may fail to bring about their intended results. In CEE/CIS, this can be used to explain the persistence of hospital debts despite the shift from historical budgets to activity-based financing based on contractual relations.

Chapter 5 demonstrates that changes in governance are quantifiable, and their impacts measurable. More specifically, statistical evidence shows that the transformation of hospital governance has a material impact on a number of hospital performance measures (Part II, research question 3). Notably, devolution of ownership leads to increases in acute care lengths of stay, numbers of admissions, and selected measures of mortality attributable to hospital care. Corporatisation of hospitals is found to increase acute lengths of stay and bed occupancy rates.

Yet, in terms of solving idiosyncratic issues of the post-communist hospital sector, these reforms have to be seen as rather unsuccessful. No evidence is found of alleviating the problems of the excessive hospital sector capacity, nor of de-emphasising inpatient care. Instead, higher utilisation rates coinciding with increased mortality may suggest that territorial governments trade-off quality for quantity of care when they are given authority over hospital care provision. This may be an outcome of resource constraints that persist in the transition systems, additionally encouraged by flawed reform design that fails to enforce quality.

7.3. Unmet needs and accessibility of medical care

Part III looked at a subset of seven post-Semashko countries that belong to a cluster characterised by stable democratic processes, European Union membership, high per capita income according to the World Bank classification, and relatively advanced health reforms. These common features render the group relevant for the benchmarking of health care system performance. Chapter 6 applies the data available from European Union Statistics on Income and Living Conditions in a comparative study of unmet medical needs, which are indicative of accessibility of health care. In terms of research questions, the study sought to identify systematic differences in unmet medical needs between CEE7 countries, establish how those differences translate into considerations of medical care accessibility, and link the relative performance to HCS design choices made during transition.

Due to the design of the EU-SILC survey questionnaire, and the conceptual link expounded in Chapter 6.2 between unmet medical needs and health care accessibility, findings regarding unmet medical needs are informative of problems with accessibility of health care (Part III, research question 2). Obtained statistical evidence reveals substantial discrepancies between the countries that constitute an arguably homogenous group of post-communist, new EU member states (Part III, research question 1). In absolute terms, health care is most easily accessible in the Czech Republic and Slovakia, while in Poland and the Baltic States affordability issues and prohibitive waiting times underlie considerable accessibility constraints reported by surveyed

individuals. The problems of affordability and waiting times are interrelated in that long wait in the public system leads to the necessity of spot market purchase. Mobility and information issues also exist but constitute minor access barriers. Statistical results show that in CEE7 the poorest households, the unemployed, working age cohorts and women are generally more exposed than the population at large to problems in accessing health care. However, it has to be noted that an overall improvement in access conditions took place over the analysed period of 2005-09.

The best performers are not only the biggest per capita spenders on health, but also rely on competition of health care insurers and operate decentralised systems that are inclusive towards various non-governmental stakeholders. The remaining countries, where the state remains a key player in health care financing, display lower but still varying levels of performance. Sizeable differences in accessibility and equity show that between the single payer model has varying potential and the achieved capacity depends on the transition path. Moreover, the hospital governance arrangement, as defined in Chapter 3, cannot be evidently linked to the equity outcomes. Despite patterns of institutional characteristics and the accessibility of health care being noticeable in the group of seven countries, the available evidence is not sufficient to defend the claim that the achieved performance can be attributed to specific reforms (Part III, research question 3).

7.4. Policy implications

The relevance of the above conclusions is not limited to the post-communist region. Issues surrounding hospital governance and accessibility of health care are high on the policy agenda of many countries. The policy debates display a degree of universality, which might enable an international flow of evidence and peer learning. In consequence, an enhanced understanding of functioning and organisation of health care benefits developed and developing countries alike. Notwithstanding the fact that the analyses provided here originate from post-Semashko systems, where the problems may be more persistent or particularly pronounced, the identified success stories as well as pitfalls offer valuable lessons on health care system design and reform.

A number of policy implications and recommendations flow from this dissertation. Firstly, while the post-Semashko countries share the background and inheritance, they require reform strategies contextualised for their economic and social development. The capacity for reform is an elusive but essential concept in understanding reasons for success and failure. In the region's experience, other than the tangible resources measureable in the GDP terms, it is the managerial capacity that comes forth as one of the key assets. While building up their economic, human and social capital, the less reformed countries should tap into the lessons learned by their peers, set goals realistically, and ought to stabilise their legal environment and clarify the principles for the health sector operation (e.g. the scope of the statutory scheme, eligibility rules, bases for

income and risk solidarity, explicitness in setting goals and transparency of operation, financial discipline) before attempting some more advanced models involving decentralisation and competition. The concept of reform capacity is also helpful in distinguishing between countries such as Bulgaria and Romania, already EU member states, and Belarus, a non-competitive political regime and unreformed HCS that nonetheless features comparable levels of health expenditures.

A coherent and realistic governance configuration is a pillar of a well-performing hospital sector. It should be seen as a requirement for economic efficiency complementary to the transformation of passive payers into active purchasers. The Harding and Preker model is helpful in understanding the complexities of the hospital internal-external incentive environment. While not without problems of its own, corporatisation of hospitals appears to be a well-defined strategy for achieving good governance.

Problematically, governance is strongly embedded in the broader institutional setting and its outcomes highly dependent on the competency of actors, which may limit or undermine the application of some more sophisticated models of the hospital sector in countries of high corruption, low transparency, and insufficient human and social capital.

Furthermore, the experience of hospital sector transition warns against change in governance that is not meaningful, incomplete, structurally flawed or susceptible to political interference. A simple delegation of responsibility to sub-national authorities is unlikely to improve operations unless it is accompanied by adequate incentives. Similarly, devolution of hospital ownership to territorial governments cannot be expected to automatically result in restructuring, improved outcomes, cost-savings and end of debt, if it does not overhaul the fundamental rules of the sector functioning. Statistical evidence produced in Chapter 5 shows that while governance influences hospital performance, reform outcomes may vary from those intended when the empowered agents are given the possibility to pursue their own agendas.

In the context of tightening welfare states' belts, it is increasingly relevant to seek good practices and directions for a successful reform. One way this can be done is by observing the peer countries' experiences with health care organisation. In Central and Eastern Europe, the nature of health care access barriers is indicative of gaps in coverage and inadequacy of public sector resources relative to need. This can be addressed with systemic solutions that realistically assess the statutory scheme capability, fairly distribute the burden of maintaining the system, and enable efficient operation by the means of good organisation. The regional leaders, Czech Republic and Slovakia, can offer important lessons based on their success stories. In particular, the presence of competition in their HCSs does not seem to undermine the equity of access, quite the opposite, those countries feature health care that is more accessible and equitable than elsewhere in the region.

Historically, CEE/CIS has offered some unique perspectives on the matter of health care organisation and its importance for health outcomes. For example, the growing gap in mortality rates between the USSR and the UK after 1970 revealed the incapacity of the Semashko model to invent or adopt new pharmaceuticals and surgical procedures. The Eastern Bloc populations fell behind in life expectancy relative to industrialised countries, which substantiated the need for conditions conducive to innovation in health care (McKee 2005). The original contributions of this dissertation prove that the post-communist countries still have stories to tell that illustrate the ways (not) to reform HCSs. Future studies may want to tap into the size and variety of this region in order to produce the much needed evidence to guide further reforms.

APPENDIX I: Additional tables

Table A.1: Dominant hospital payment mechanisms, by country

Country	Budget	FFS	Casemix
Albania	1989-2010		
Armenia	1989-1997		1998-2010
Azerbaijan	1989-2010		
Belarus	1989-2010		
Bulgaria	1989-2000		2001-2010
Czech Republic	1989-1992, 2005-2006	1993-2004	2007-2010
Estonia	1989-1992	1993-2004	2005-2010
Georgia	1989-1995		1996-2010
Hungary	1989-1992		1993-2010
Kazakhstan	1989-1995	1996-2004	2005-2010
Kyrgyzstan	1989-1996		1997-2010
Latvia	1989-1993	1994-1997	1998-2010
Lithuania	1989-1996		1997-2010
Moldova	1989-2003		2004-2010
Poland	1989-1998	1999	2000-2010
Romania	1989-1998	1999-2004	2005-2010
Russian Federation	1989-2010		
Slovakia	1989-1992, 1999-2001	1993-1998	2002-2010
Tajikistan	1989-2010		
Turkmenistan	1989-2010		
Ukraine	1989-2010		
Uzbekistan	1989-2010		

Table A.2: Predicted probability of reporting unmet needs for medical treatment or examination (odds ratios) for covariates included in the alternative model (age and income modelled as continuous variables)

Variable	Category	*Czech Republic*					*Estonia*					*Hungary*					*Latvia*					*Lithuania*					*Poland*					*Slovakia*				
		2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Health status	very bad	1.79	2.48	1.98	3.24		1.79	2.81	1.68	2.85		1.52	1.94	2.42	2.02	1.87	2.80	1.70	2.09	3.20	1.80	3.48	2.75	4.07	3.14	2.79	1.88	1.71	2.10	2.02	2.08	3.81	3.98	4.41	3.13	4.55
	bad	1.69	1.65	1.60	1.46	1.51	1.90	1.69	1.55	1.77	1.79	1.39	1.62	1.82	1.40	1.52	2.20	1.62	1.50	1.61	1.63	1.94	2.01	2.29	1.90	1.70	1.43	1.38	1.50	1.48	1.61	2.64	2.23	2.23	2.11	2.34
	fair*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	good	0.40	0.58	0.45	0.46	0.59	0.39	0.41	0.41	0.27	0.30	0.49	0.54	0.43	0.45	0.36	0.34	0.39	0.45	0.30	0.26	0.35	0.32	0.37	0.38	0.38	0.44	0.44	0.40	0.43	0.36	0.56	0.61	0.65	0.47	0.52
	very good	0.21	0.24	0.22	0.26	0.22	0.19	0.18	0.18	0.21	0.31	0.38	0.31	0.22	0.20	0.20	0.15	0.20	0.31	0.15	0.21	0.24	0.18	0.24			0.19	0.23	0.23	0.24	0.18	0.26	0.27	0.44	0.31	0.27
Sex	female*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	male							0.84	0.85	0.82			1.13	1.10	1.11	1.19	0.77					0.82			0.80	0.72	0.82	0.85	0.86	0.93	0.83		0.85			
Age							1.06	1.12	1.09	1.05	1.04	1.08	1.07	1.06	1.07	1.09	1.04	1.06	1.07	1.06	1.06		1.05		1.11	1.06	1.05	1.04	1.05	1.04	1.04	1.04	1.05			
Age squared			<1				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1			
Education	primary											1.24		1.23	1.29	1.23		1.39	1.61	1.55	1.30						1.09			1.23	1.10					
	secondary*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	tertiary	1.49																0.81					0.80				1.16	1.21	1.20		1.22					0.54
Income		0.96				0.96	0.92	0.93				0.94	0.97	0.96	0.95	0.95	0.93	0.92	0.92	0.96	0.95	0.89	0.89	0.95			0.96	0.94	0.97	0.97	0.99	0.95	0.93			
Income squared							>1	>1				>1	>1	>1	>1	>1	>1	>1	>1	>1	>1	>1	>1	>1			>1	>1	>1	>1	>1	>1	>1			
Basic economic activity	employed*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	unemployed	0.65		0.64			3.45	2.52	2.50	2.01	2.24						1.37	1.64	1.56	1.51	1.50										1.37	1.38	2.47		1.96
	retired	0.57	0.69	0.53	0.62	0.70						0.58	0.50	0.58	0.53	0.53		0.75	0.80								0.73	0.62	0.67	0.71	0.74	0.54	0.65	0.55		0.52
	otherwise inactive	0.46	0.61	0.66	0.61					0.74		0.73	0.60				0.60	0.73		0.77		0.75	0.79	0.78			0.62	0.67	0.68	0.73	0.80		0.62		0.45	
Area of residence	urban					1.51						0.83		0.67	0.87	0.51											1.25	1.28	1.32		1.22	1.37	1.53	1.43	1.33	
	intermediate*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	rural			0.71				0.82	0.50	0.76	0.59	0.73	0.84	0.71			0.59	0.72	0.62	0.81		0.60	0.49	0.48	0.45	0.40	0.85									

Variable units are one year for 'age' and 100 euro for 'income'. Reported are odds ratios statistically significant at 5%. No value indicates the coefficient was found statistically insignificant. The continuous variables' odds ratios are often close to 1. Where a rounded estimate figure would appear as 1, instead indicated is the position relative to 1.

Table A.3: Predicted probability of reporting unmet needs for medical treatment or examination (odds ratios with standard errors) for covariates included in the model

		Czech Republic					*Estonia*					*Hungary*					*Latvia*					*Lithuania*					*Poland*					*Slovakia*				
Variable	Category	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Health status	very bad	1.69*	2.33*	1.89*	2.96*	3.4	1.69*	2.65*	1.58*	3.03*	1.43	1.5*	1.87*	2.39*	1.99*	1.86*	2.73*	1.69*	2.04*	1.13*	1.76*	3.4*	2.65*	3.95*	2.91*	2.85*	1.81*	1.68*	2.03*	1.97*	2.05*	3.79*	3.9*	4.22*	3.06*	4.47*
		(0.4)	(0.44)	(0.38)	(0.52)	(0.35)	(0.32)	(0.4)	(0.27)	(0.31)	(0.47)	(0.18)	(0.2)	(0.23)	(0.19)	(0.18)	(0.3)	(0.18)	(0.22)	(0.11)	(0.22)	(0.38)	(0.38)	(0.34)	(0.48)	(0.4)	(0.13)	(0.13)	(0.17)	(0.18)	(0.17)	(0.31)	(0.34)	(0.73)	(0.31)	(0.71)
	bad	1.65*	1.6*	1.57*	1.37*	1.45*	1.86*	1.68*	1.53*	1.92*	1.85*	1.4*	1.62*	1.83*	1.4*	1.51*	2.18*	1.62*	1.49*	1.62*	1.62*	1.93*	1.99*	2.28*	1.83*	1.8*	1.41*	1.37*	1.48*	1.46*	1.59*	2.63*	2.22*	2.21*	2.11*	2.32*
		(0.22)	(0.19)	(0.17)	(0.17)	(0.2)	(0.2)	(0.15)	(0.14)	(0.18)	(0.23)	(0.08)	(0.11)	(0.12)	(0.1)	(0.11)	(0.19)	(0.11)	(0.12)	(0.11)	(0.11)	(0.18)	(0.17)	(0.2)	(0.18)	(0.24)	(0.09)	(0.08)	(0.07)	(0.09)	(0.09)	(0.28)	(0.23)	(0.33)	(0.27)	(0.29)
	fair*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	good	0.38*	0.57*	0.43*	0.44*	0.57*	0.39*	0.4*	0.39*	0.34*	0.43*	0.49*	0.53*	0.43*	0.43*	0.35*	0.34*	0.38*	0.43*	0.29*	0.25*	0.34*	0.33*	0.35*	0.42*	0.46*	0.43*	0.44*	0.39*	0.43*	0.36*	0.54*	0.6*	0.62*	0.44*	0.49*
		(0.02)	(0.04)	(0.04)	(0.05)	(0.07)	(0.04)	(0.03)	(0.03)	(0.03)	(0.05)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.04)	(0.03)	(0.04)	(0.04)	(0.08)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.04)	(0.08)	(0.05)	(0.08)
	very good	0.21*	0.24*	0.22*	0.25*	0.2*	0.18*	0.17*	0.16*	0.28*	0.5*	0.37*	0.3*	0.21*	0.18*	0.19*	0.15*	0.19*	0.3*	0.13*	0.19*	0.25*	0.17*	0.23*	0.75	0.66	0.19*	0.23*	0.22*	0.23*	0.18*	0.26*	0.26*	0.43*	0.29*	0.25*
		(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.08)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.05)	(0.03)	(0.04)	(0.23)	(0.23)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.07)	(0.04)	(0.05)
Sex	female*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	male	0.89	1.09	1.05	1.24*	1.06	0.93	0.86*	0.86*	0.79*	0.92	1.08	1.13*	1.11*	1.12*	1.19*	0.78*	0.92	1	1.05	0.97	0.81*	0.9	0.9	0.8*	0.72*	0.83*	0.85*	0.86*	0.93	0.83*	0.91	0.86*	1.12	1.13	0.94
		(0.04)	(0.04)	(0.04)	(0.1)	(0.1)	(0.07)	(0.05)	(0.04)	(0.04)	(0.04)	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.08)	(0.04)	(0.04)	(0.07)	(0.08)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.08)	(0.04)	(0.1)	(0.1)	(0.08)
Age	below 30	1.14	0.78	0.89	1.13	0.93	0.87	0.42*	0.44*	0.53*	0.52*	0.71*	0.64*	0.7*	0.63*	0.56*	0.74*	0.72*	0.51*	0.82	0.75*	1	0.78	0.97	0.22*	0.52*	0.76*	0.83*	0.74*	0.81*	0.84*	0.82	0.77	0.71*	0.73*	0.75
		(0.2)	(0.13)	(0.13)	(0.18)	(0.18)	(0.12)	(0.05)	(0.06)	(0.07)	(0.09)	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.07)	(0.05)	(0.05)	(0.06)	(0.06)	(0.15)	(0.11)	(0.14)	(0.05)	(0.12)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.11)	(0.11)	(0.12)	(0.12)	(0.12)
	30-39	1.27	1.03	1.06	1.38*	1.01	1.2	0.87	0.93	1	0.76	1	1.06	1.06	1.08	1.03	1.1	0.91	0.85*	1.08	1.22*	1.2	0.92	1.21	0.68*	0.73	1.08	0.95	0.98	1.12	1.01	1.19	1.11	0.98	0.89	1.15
		(0.19)	(0.14)	(0.13)	(0.2)	(0.18)	(0.18)	(0.1)	(0.1)	(0.13)	(0.13)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.1)	(0.03)	(0.04)	(0.1)	(0.12)	(0.15)	(0.12)	(0.14)	(0.12)	(0.18)	(0.02)	(0.03)	(0.03)	(0.04)	(0.04)	(0.14)	(0.14)	(0.14)	(0.14)	(0.17)
	40-49*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50-59	0.63*	0.75*	0.71*	0.8	0.77	0.98	0.88	0.85	1.11	1	0.82*	0.78*	0.76*	0.84*	0.9	0.91	0.93	0.93	0.82*	0.91	0.82	0.83	0.9	0.79	0.99	0.79*	0.9*	0.85*	0.96	0.91	0.98	0.88	0.78	0.64*	0.88
		(0.08)	(0.08)	(0.08)	(0.11)	(0.12)	(0.12)	(0.06)	(0.06)	(0.12)	(0.14)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.10)	(0.04)	(0.04)	(0.07)	(0.08)	(0.08)	(0.08)	(0.1)	(0.1)	(0.18)	(0.04)	(0.05)	(0.05)	(0.06)	(0.06)	(0.1)	(0.1)	(0.11)	(0.09)	(0.12)
	60-69	0.59*	0.51*	0.65*	0.52*	0.44*	0.69*	0.55*	0.73*	0.77	0.62*	0.7*	0.69*	0.65*	0.75*	0.75*	0.61*	0.9	0.82	0.8*	0.9	0.83	0.95	0.78	0.68*	0.84	0.67*	0.81*	0.83*	0.88	0.84*	0.92	0.62*	0.51*	0.7	0.85
		(0.14)	(0.1)	(0.11)	(0.11)	(0.1)	(0.12)	(0.08)	(0.1)	(0.13)	(0.11)	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)	(0.07)	(0.1)	(0.08)	(0.08)	(0.1)	(0.15)	(0.13)	(0.12)	(0.13)	(0.22)	(0.08)	(0.08)	(0.07)	(0.08)	(0.07)	(0.11)	(0.1)	(0.11)	(0.14)	(0.18)
	70 and more	0.62	0.49*	0.58*	0.54*	0.41*	0.5*	0.35*	0.6*	0.57*	0.46*	0.41*	0.48*	0.46*	0.51*	0.47*	0.48*	0.67*	0.62*	0.35*	0.66*	0.77	0.66*	0.67*	0.45*	0.62	0.46*	0.59*	0.55*	0.64*	0.58*	0.59*	0.5*	0.65	0.69	0.88
		(0.14)	(0.11)	(0.12)	(0.14)	(0.11)	(0.1)	(0.08)	(0.08)	(0.1)	(0.12)	(0.05)	(0.05)	(0.06)	(0.05)	(0.07)	(0.08)	(0.07)	(0.06)	(0.05)	(0.08)	(0.17)	(0.12)	(0.13)	(0.1)	(0.18)	(0.05)	(0.06)	(0.05)	(0.07)	(0.06)	(0.1)	(0.09)	(0.14)	(0.13)	(0.21)
Education	primary	0.49	0.65	—	—	—	1.15	0.94	1.05	0.98	1.14	1.35	1.13	1.06	1.1	1.16	1.1	1.17*	1.35*	1.39*	1.47*	1.17	0.95	0.95	1.09	1.23	0.93	1.05	0.97	1.05	1.19*	1.05	1.96	1.47	0.9	0.64	1.32
		(0.3)	(0.47)				(0.84)	(0.13)	(0.14)	(0.14)	(0.15)	(0.28)	(0.11)	(0.1)	(0.1)	(0.11)	(0.11)	(0.14)	(0.19)	(0.19)	(0.17)	(0.14)	(0.13)	(0.13)	(0.17)	(0.18)	(0.14)	(0.14)	(0.13)	(0.14)	(0.15)	(0.14)	(0.43)	(0.47)	(0.37)	(0.28)	(0.4)
	secondary*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	tertiary	1.43*	1.26	1.07	0.87	0.71	1.06	0.91	1.08	1.03	1.07	1.06	0.96	1.09	0.89	0.94	0.99	0.82*	0.98	0.93	0.93	0.93	0.79*	0.98	0.94	0.75	1.15*	1.19*	1.19*	1.08	1.21*	1.1	1.1	1.1	0.86	0.55*
		(0.21)	(0.18)	(0.15)	(0.13)	(0.11)	(0.15)	(0.12)	(0.14)	(0.14)	(0.16)	(0.07)	(0.07)	(0.08)	(0.07)	(0.07)	(0.14)	(0.06)	(0.07)	(0.07)	(0.07)	(0.1)	(0.07)	(0.09)	(0.1)	(0.12)	(0.06)	(0.06)	(0.07)	(0.06)	(0.07)	(0.12)	(0.12)	(0.12)	(0.11)	(0.08)
Household income	poorest	1.23	1.27	1.19	1.74*	2.19*	1.59*	1.49*	1.28*	1.25*	1.36*	1.32*	1.35*	1.36*	1.46*	1.43*	1.26*	1.69*	1.6*	1.76*	1.79*	1.25*	1.39*	1.2	1.14	1.48*	1.45*	1.42*	1.32*	1.43*	1.41*	1.47*	1.6*	1.34	1.08	1.25
		(0.17)	(0.18)	(0.14)	(0.23)	(0.24)	(0.18)	(0.14)	(0.12)	(0.14)	(0.18)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.11)	(0.11)	(0.11)	(0.14)	(0.13)	(0.14)	(0.13)	(0.13)	(0.14)	(0.23)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.14)	(0.18)	(0.18)	(0.16)	(0.18)
	2nd quintile	0.81	1.04	0.85	0.94	1.54*	0.98	0.92	1.02	1.02	1.11	1.14	1.35*	0.92	1.25*	1.25*	1.14	1.27*	1.06	1.13	1.31*	1.04	1.07	0.89	0.97	1.51*	1.25*	1.12*	1.1	1.12*	1.05	1.06	1.1	1.01	1.04	1.16
		(0.12)	(0.14)	(0.11)	(0.14)	(0.23)	(0.12)	(0.09)	(0.12)	(0.12)	(0.14)	(0.08)	(0.1)	(0.07)	(0.09)	(0.1)	(0.09)	(0.1)	(0.09)	(0.09)	(0.11)	(0.11)	(0.11)	(0.1)	(0.13)	(0.23)	(0.09)	(0.09)	(0.08)	(0.09)	(0.08)	(0.12)	(0.13)	(0.13)	(0.13)	(0.16)
	middle*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4th quintile	0.94	0.92	1.12	1.35*	1.41*	0.9	1	1.04	1.05	1.01	0.91	1.02	0.8*	1.01	1.1	0.84*	0.98	0.82*	0.96	0.88	0.82	0.78*	0.79*	0.83	1.23	0.98	0.92	0.84*	0.91	0.96	1.23	0.97	1.12	0.99	1.36*
		(0.13)	(0.12)	(0.13)	(0.18)	(0.23)	(0.12)	(0.1)	(0.11)	(0.12)	(0.13)	(0.07)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.1)	(0.08)	(0.09)	(0.11)	(0.22)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.14)	(0.12)	(0.17)	(0.13)	(0.18)
	richest	0.77	1	0.93	1.17	1.25	0.84	0.87	1.12	1	0.95	0.77*	0.99	0.86	0.89	1.13	0.78*	0.68*	0.57*	0.75*	0.71*	0.83	0.79*	0.8	0.87	0.91	0.97	0.96	0.95	1.01	1.02	0.91	0.8	0.96	1.19	1.47*
		(0.12)	(0.13)	(0.11)	(0.17)	(0.22)	(0.12)	(0.1)	(0.12)	(0.13)	(0.15)	(0.08)	(0.08)	(0.07)	(0.07)	(0.1)	(0.07)	(0.06)	(0.06)	(0.07)	(0.07)	(0.1)	(0.08)	(0.09)	(0.12)	(0.18)	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)	(0.11)	(0.11)	(0.13)	(0.13)	(0.21)
Basic economic activity	employed*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	unemployed	0.66	0.79	0.64*	0.92	1.16	3.34*	2.51*	2.42*	2.11*	2.18*	0.88	0.96	0.92	1.15	1.21	1.35*	1.54*	1.52*	1.44*	1.47*	1.31*	1.24	0.9	1.31	1.31	0.91	1	1.01	0.98	1.04	1.36*	1.37*	2.52*	1.22	1.93*
		(0.14)	(0.15)	(0.12)	(0.21)	(0.27)	(0.24)	(0.15)	(0.14)	(0.15)	(0.19)	(0.1)	(0.1)	(0.11)	(0.12)	(0.12)	(0.11)	(0.13)	(0.17)	(0.15)	(0.15)	(0.19)	(0.17)	(0.17)	(0.27)	(0.28)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.24)	(0.23)	(0.4)	(0.23)	(0.34)
	retired	0.61*	0.76	0.59*	0.76	0.85	1	1.19	1.03	1.28	1.36	0.54*	0.48*	0.59*	0.52*	0.51*	0.97	0.68*	0.84	0.74*	0.75*	0.83	0.76	0.92	1.02	1.36	0.71*	0.6*	0.64*	0.7	0.71*	0.53*	0.7	0.69	0.77	0.59*
		(0.13)	(0.14)	(0.1)	(0.15)	(0.18)	(0.17)	(0.14)	(0.11)	(0.16)	(0.19)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.11)	(0.07)	(0.09)	(0.08)	(0.08)	(0.13)	(0.11)	(0.13)	(0.14)	(0.27)	(0.07)	(0.06)	(0.06)	(0.07)	(0.06)	(0.11)	(0.11)	(0.14)	(0.12)	(0.12)
	otherwise inactive	0.52*	0.63*	0.72*	0.68*	0.82	0.91	0.87	1.03	0.77*	0.91	0.69*	0.36*	0.91	0.88	0.89	0.62*	0.63*	0.93	0.72*	0.86	0.8	0.79*	0.78*	1.19	1.06	0.63*	0.65*	0.66*	0.71*	0.76*	0.78	0.63*	0.8	0.48*	0.83
		(0.08)	(0.08)	(0.08)	(0.1)	(0.13)	(0.13)	(0.11)	(0.11)	(0.14)	(0.18)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.08)	(0.07)	(0.08)	(0.06)	(0.07)	(0.11)	(0.08)	(0.08)	(0.17)	(0.2)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.1)	(0.09)	(0.12)	(0.08)	(0.13)
Area of residence	urban	0.96	0.93	0.85	1.01	1.5*	n/a	n/a	n/a	n/a	n/a	0.83*	0.9	0.86*	0.87*	0.9*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.25*	1.28*	1.31*	1.05	1.22*	1.39*	1.52*	1.44*	1.35*	1.14
		(0.1)	(0.1)	(0.09)	(0.12)	(0.18)						(0.03)	(0.03)	(0.04)	(0.04)	(0.04)											(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.11)	(0.12)	(0.13)	(0.13)	(0.12)
	intermediate*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	rural	1.01	0.89	0.71*	1.13	1.04	0.85	0.82*	0.5*	0.74*	0.65*	0.74*	0.83*	0.71*	0.93	0.97	0.59*	0.71*	0.62*	0.8*	0.92	0.61*	0.49*	0.48*	0.46*	0.42*	0.83*	0.92	1.02	0.92	0.9*	0.98	0.93	0.97	0.96	0.86
		(0.11)	(0.09)	(0.08)	(0.13)	(0.12)	(0.07)	(0.05)	(0.05)	(0.05)	(0.08)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.06)	(0.04)	(0.04)	(0.04)	(0.05)	(0.08)	(0.04)	(0.05)	(0.08)	(0.08)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.08)	(0.08)	(0.11)	(0.1)	(0.09)

Reported are odds ratios relative to the base ('^') category together with standard errors. Statistical significance at 5% is denoted with '*'.

APPENDIX II: Part III supplementary materials

Excerpt from EU-SILC documentation (Eurostat 2009) regarding key outcome variables in the study of unmet needs and health care accessibility in CEE7.

PH040: Unmet need for medical examination or treatment

[Unmet need for medical examination or treatment during the last 12 months]
HEALTH (Access to health care)
Cross-sectional
Reference period: last twelve months
Unit: Selected respondent (where applies) or all current household members aged 16 and over
Mode of collection: Personal interview (proxy as an exception) or registers

Values	
1	yes, there was at least one occasion when the person really needed examination or treatment but did not
2	no, there was no occasion when the person really needed examination or treatment but did not

Flags	
1	filled
-1	missing
-3	not selected respondent

There were very large differences between the EU countries in terms of the proportion of people with free access to health care or medically. In countries where all or nearly all persons are covered, access to health care may still be limited by the existence of waiting lists and other forms of rationing.

Concerning medical examination, the aim of the variable is to capture the person's own assessment of whether he or she needed to consult a medical doctor, but was not able to. In principle, there is no need to explicitly exclude General Practitioners (GP). Actually, the question is not aimed at assessing the access to specialists only for which there is a specific question in the every 5 years European Health Interview Survey (EHIS question HC.14) but in general to examination by medical doctors (GPs, specialists, etc.). Otherwise, the magnitude of the problem of access to medical examination, which concerns potentially any type of medical examination, would be underestimated. In addition the problems listed in PH050 refer to any doctor in numerous Member States. On the other hand, it should be clear that only real needs of medical examination are taken into account.

As a summary, the question aims at covering "core" need as regard to medical care.

Regarding the inclusion of other types of treatment, one strategy is to use a form of wording to make clear that we want to include what is regarded as mainstream medicine in the country, i.e. the kinds of things covered by medical insurance. The key concern is with restrictions in access to what would generally be regarded in the society as appropriate treatment for a health condition. Countries will differ in terms of the extent to which specialists such as chiropractors, specialists in acupuncture and so on, have become 'mainstream'. This may be best accomplished by using an interviewer prompt.

In order to ensure that only serious needs are taken into account, it is suggested adding in the question the term "when you really needed ...".
The Working Group also suggests adding the word 'on your own behalf' to make sure that the consultation/treatment was on the person's own behalf rather than on behalf of children.

spouse, etc. If this is not clarified, any comparison between men and women or between parents and non-parents might be confounded.

As a model to be adapted to the current PH040, the question on unmet need for specialist consultation in the EHIS is as follows (the terms in italics refers to specialists and should be deleted or adapted):

HC.14 Was there any time during the past 12 months when you really needed to consult a *specialist* but did not?

- Yes, there was at least one occasion ☐ 1
- No, there was no occasion 2 → GO TO HC.16/PH060

(and possibly:

- don't know 8 → GO TO HC.16/PH060
- refusal 9 → GO TO HC.16/PH060)

PH050: Main reason for unmet need for medical examination or treatment

HEALTH (Access to health care)
Cross-sectional
Reference period: last twelve months
Unit: Selected respondent (where applies) or all current household members aged 16 and over
Mode of collection: Personal interview (proxy as an exception) or registers

Values	
1	Could not afford to (too expensive)
2	Waiting list
3	Could not take time because of work, care for children or for others
4	Too far to travel no means of transportation
5	Fear of doctor hospitals examination treatment
6	Wanted to wait and see if problem got better on its own
7	Didn't know any good doctor or specialist
8	Other reasons

Flags	
1	filled
-1	missing
-2	not applicable (PH040 not = 1)
-3	not selected respondent

This is a follow-up question to the previous one. It aims capture the dimension of restricted access to health care by including not only formal health care coverage (by insurance or universal coverage), but also restrictions due to rationing, waiting lists, the ability to afford care, and other reasons.

In the proposed classification for this item, option 2 (length of the waiting list) should be used for people who were actually on a waiting list and were not helped, for respondents who were discouraged from seeking care because of perceptions of the long waiting lists, as well as people who have 'applied' and are still waiting to see a medical specialist.

'Not covered by insurance' should be coded as 'could not afford to' if the respondent could not afford to pay for the treatment/examination himself or herself.

The issue on the perception of "Could not afford to (too expensive)" should be tackled in order to not include reaction about "too expensive" which are relative (more expensive than before, etc.) but relate only to the fact that the person could not pay the price, not having money enough for this. The fact that the price is not covered by an insurance fund is in particular an important element to be taken into account.

As a model to be adapted to the current PH050, the question on unmet need for specialist consultation in the EHIS is as follows (the terms in italics refers to specialists and should be deleted or adapted):

HC.15 What was the main reason for not consulting a *specialist*?

- Could not afford to (too expensive or not covered by the insurance fund) 01
- Waiting list, *don't have the referral letter* 02
- Could not take time because of work, care for children or for others 03
- Too far to travel / no means of transportation 04
- Fear of doctor / hospitals / examination / treatment 05
- Wanted to wait and see if problem got better on its own 06
- Didn't know any good *specialist* 07
- Other reason 08

(and possibly:

- don't know 98
- refusal 99)

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